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RAIL-ROAD NEWS.

Arkansas and Internal Improvements.

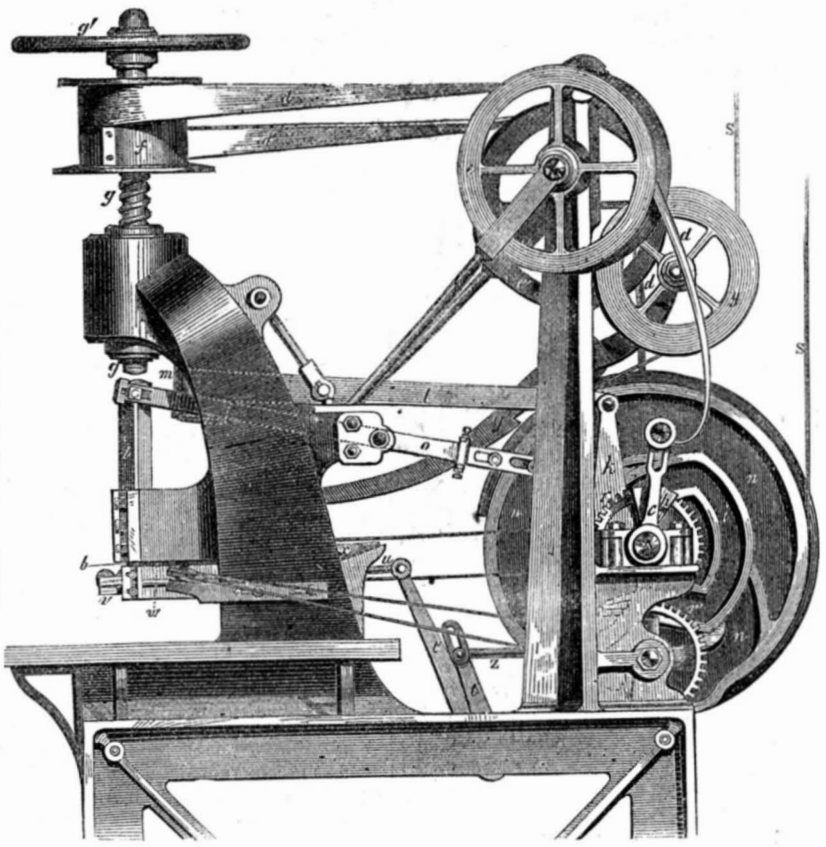
The people of Arkansas are waking up to a true sense of their own interests. We have been informed that a charter has been obtained, under the General Charter Law, for a railroad from Memphis, Tenn., via Little Rock, to Fulton, Ark., on Red River. There is a feeling, both spirited and commendable, among a great portion of the people of that State, to construct a system of railroads. At Little Rock, the capital of Arkansas, a Permanent Central Committee of gentlemen has been chosen, by the citizens, to further the object of "Internal Improvements," and in an address to the people, they state that "the prosperity of Arkansas is based upon the rapid developement of her commercial, agricultural, manufacturing, and mineral resources, which exist in extent and variety unequalled, perhaps, by any State tributary to the Mississippi river."

The people of our Southern and South-Western States have too long neglected their best interests in not devoting more attention to the construction of good railroads. We look upon railroads not merely as beneficial for rapid passenger conveyance, but also for the economical carriage of goods, agricultural products, &c., of all kinds. All our Southern States are rich in natural resources, but as the best and most thrifty trade is between town and country, bad roads and a great distance from market, tend to repress the spirit of agricultural industry. No farmer will bring produce to market, if the cost, on account of bad roads, is more for carriage than the price of the produce when brought to market. No farmer has an incentive to raise a surplus crop, when the cost of bringing it to market is great; reduce the transport cost, and he then has. This our railroads certainly do, consequently they tend to develope the internal resources of every country through which they pass. Good railroads and plank roads will yet do wonders for our Southern and Western States, and the sooner every State leaps into the trenches, with hearts, hands, and pockets, the sooner will all the people win for themselves enduring benefits.

The Pennsylvania Central Railroad.

An agreement between the managers of this railroad and the merchants, of Philadelphia, has been entered into, the result of which is, that the said railroad will not carry goods purchased in New York. This policy is to force the Western merchants to buy in Philadelphia. It is a mean business, anti-democratic in spirit and principle. It will work to the injury of said road if the policy of the directors is not changed. The railroads in New York dare not do the like of this. If the merchants in Philadelphia cannot compete with those in New York, but by a resort to such contemptible policy, they deserve to break down, and sink into obscurity. The conduct of the Central Railroad, is a disgrace to the good people of Pennsylvania.

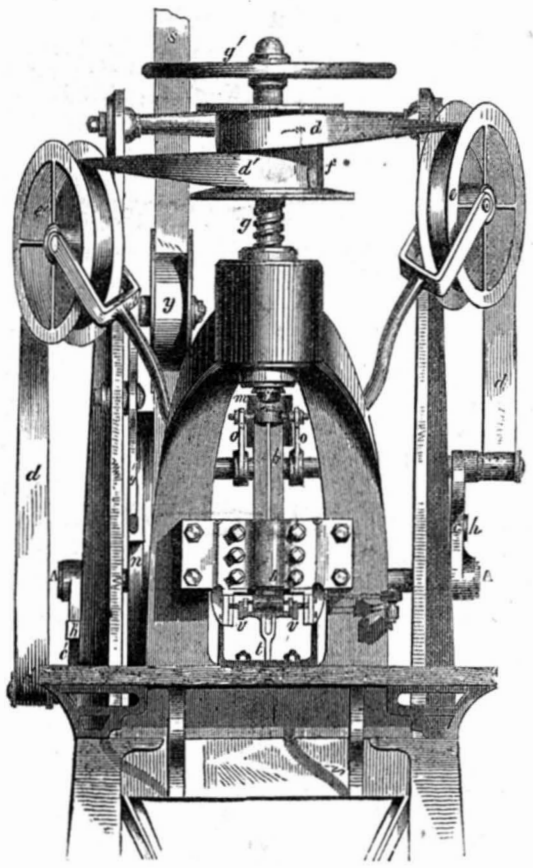
HILL'S EMBOSSING PRESS.---Fig. 1.



The accompanying engravings are views of an embossing press constructed by Edwin Hill, of London, and employed for embossing envelopes and government stamps. It was on exhibition during the World's Fair, and a number of such presses have been constructed for the Prussian Government. Fig. 1. is a side and fig. 2 an end elevation. The same letters refer to like parts.

The machine consists of a strong fly-and-screw press, with an inking apparatus, including a peculiar contrivance for accelerating the rate of stamping, without accelerating the angular motion of the fly and screw. The envelope is placed under the stamp by an attendant at the precise moment when the stamp is being inked; the position of the envelope being determined by guides, so that the impression may be in the same place in all the envelopes. When the die descends and makes the impression, it immediately rises again preparatory to another blow; a second attendant removes the stamped envelope, and the first attendant puts a blank envelope in its place. So rapidly are these motions performed, that a blank envelope is placed under the die, stamped, and removed, sixty times a minute. The main spindle is driven by a strap, at the rate of one turn of the machine per second; each turn producing an embossed medallion stamp. From the main spindle, motion is communicated first to the fly and screw, which of course rise and fall alternately; and secondly, to the bolt of the press, at the lower end of which the die is attached. In the third place, motion is communicated to a very strong steel punch, which, at the moment the blow is given, is interposed between the end of the descending screw and the head of the bolt, thus transmitting the force of the screw to the bolt. When the impression is completed, this punch is withdrawn, and the bolt ascends, in order that the die may receive its supply of ink. Fourthly, motion is given to the inking apparatus, which consists of a doctor, an inverted inking-table, and a sliding frame, carrying the four composition rollers. The machine, when in motion, can be stopped by means of an apparatus so constructed that when pressed down, the principal cam, upon arriving at a certain point of its revolution, is at once arrested. It is necessary to stop the machine in one particular position, so as to allow the dies and the inking apparatus to be readily got at.

Figure 2.



A A is the main spindle, and S is the driving-strap; *c* and *c'* are two cranks, one at each end of the main spindle, which, by means of the two straps, *d* and *d'*, passing over the pulleys, *e* and *e'*, and attached to the drum, *f*, which is fixed upon the screw, *g*, turn the screw, together with its fly, *g'*, backwards and forwards alternately, producing thereby its alternate rise and fall. These two cranks, however, are not made fast upon the main spindle, but are operated upon, each at its proper time, by two other cranks, *h* and *h'* fixed to the main spindle. This provision of loose and fast cranks is rendered necessary by the rebound of the screw and fly from the blow which outruns the cranks, and would break the straps but for this precaution. Upon the main spindle is a cam, *i*, which moves the lever, *k*, backwards and forwards, and, through a horizontal bar, *l*, the punch, *m*, is moved backwards and forwards, and thus interposed between the screw, *g*, as it descends, and the bolt, *b*, at the moment when the blow is given; *n* is a second cam upon the main spindle, A A, which, by alternately raising and depressing the levers, *o o*, raises and depresses the bolt, *b*, to the lower end of which the die is attached; *r* and *r'* are toothed wheels, for driving the inking apparatus; *r'* has a crank-pin, which, by means of the link, *z*, sways backwards and forwards the arm, *t*, and through that the arm, *t'*, fixed upon the same spindle. This last arm, *t'*, through the link, *u*, draws backwards and forwards the inking-frame, *v*, with its four composition rollers, which ink the die by running under it when the bolt is in its raised position, as shown in the figure. *w* is the inverted ink-distributing table; it is circular, and is acted upon by a slack band, which turns it round feebly whenever the inking-rollers lose contact with it. *x* is the doctor, furnished with a roller which is constantly turned round by a band; *y* is a slacking pulley fixed to the arm, *y'*, on which arm is also a break which binds against the main driving-wheel, and a strong tooth, catching a projection on that wheel, and bringing the machine to a dead stop always in the same position, *i. e.* nearly in the position shown in fig. 1.

Mr. Charles Mare, the eminent ship-builder of Blackwall, has challenged the Americans to run a vessel against any one that they can produce for a thousand guineas. The tonnage of the ship to be from 50 to 380 tons.—London Times.

[Well, he will be taken up. Com. Stevens challenged all England for £10,000 with the yacht America, but he could not get one to take him up.

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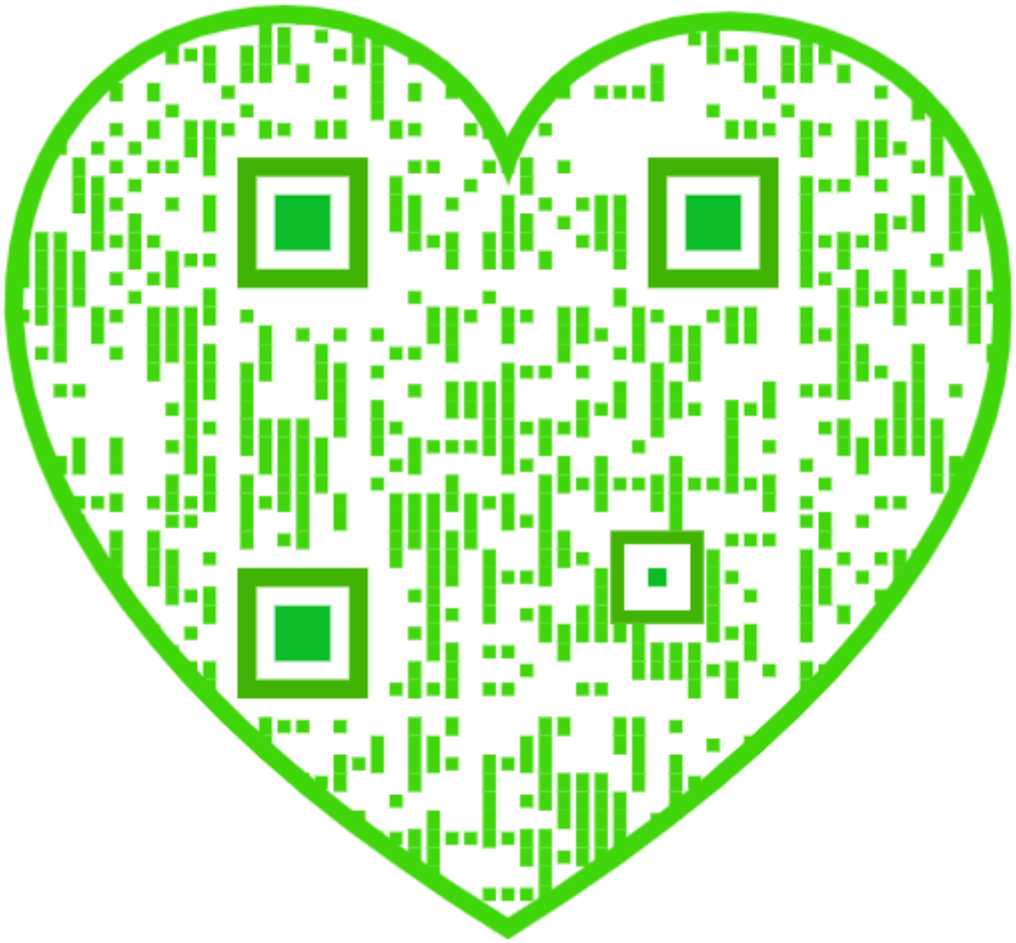

MISCELLANEOUS.

(For the Scientific American.)

Geology of the Lead Mines.---No. 3.

Lead has been found in its native or pure state; but this is rarely the case, and always when it does occur, in very small quantities. Although it is a metal found in a great variety of combinations with other ores, there is but one kind that is abundant. The others are chiefly known as objects of interest to the geologist and mineralogist, for analyzing, or for cabinet specimens. The common ore is usually a combination of lead, sulphur, and other substances. In analyzing good ore of this kind, we find lead 75, sulphur 15, other substances, lime, &c., 10 parts in 100. This ore is called galena, or sulphuret of lead. It is in this combination that it is found in the largest quantities in our mines. We have lead in connection with other metals, particularly zinc and carbonate, (Dry Bone) and sulphuret (Black Jack), are found rather abundant in many of our lodes. It is found associated with silver, copper, cobalt, or arsenic, &c., &c. When found in connection with silver, it is termed argentiferous galena. We have not as yet seen it in this combination in our mines; although it may be in the lower strata of the lead-bearing rocks, as it is in this location that it is most frequently met with in England, France, the Hartz in Germany, and in Norway and Siberia. In geological position, with the exception ot our mines, galena is most abundantly met with in the lower strata of the secondary deposits. It is also found in rocks laying still deeper than these, even in granite and trap, where they are in connection or associated with stratified rocks. It is also found in the coal measures; but in no instance as yet, in any country, has it been found in any strata above the coal. The chief mines in England are in North Wales, Cornwall, and Derbyshire. This last district is almost wholly composed of carboniferous limestone, the great deposit that lies under the coal strata. The beds of limestone are much disturbed in their stratification, and are intersected by dykes and beds of trap rocks. The mines of Scotland are very productive. The most important are those situated in the graywack, or slate rocks, composing the chain of hills which extend across the South of Scotland, from St. Abbs, north of Berwick. These mines were discovered in 1540, and have been worked profitably for three hundred years. Most of the lodes in this district run north and south. Galena has also been found at Tyndrum, in Argyleshire, where the ore is found in a bed of quartz, which is part of a series of strata or rock—mica slate. At Strontium, in the same county, the galena is found in gneiss, the oldest of the primary strata. The richest of the Spanish mines at Linares, occur in granite. The mines in the Sierra de Gadoe is in a limestone, classed by geologists, among the oldest transition rocks. In the Hartz mountains, lead ore occurs in graywack and slates, resting on granite. In Norway it occurs with silver in mica slate; and in France, galena, containing silver, runs through gneiss, mica slate, and granite. All of the mines we have enumerated are in deeper formations than any in our district; or in other words, we are much higher up in the scale of geological formations than a great majority, if not all of them. We have no rocks as old as any we have enumerated, short of Lake Superior; there, most if not all of them are found at or near the surface, and there also a magnesian limestone, supposed to be identical with our lower stratum, is found capping and overlaying the sandstone, 400 feet above the level of the lake. Taking, then, all these facts into consideration, we are only confirmed in the belief, "that the largest lodes of mineral in these mines are yet to be found far below us."

So long as we continue to discover lodes in the upper stratum, the magnesian limestone, at distances not over 100 feet from the surface, we see but little prospect of any effort being made to open the ground in the lower beds. Even now, we know of a number of rich lodes in various sections that have been abandoned, in consequence of running into water, at depths not over 75 or 80 feet; and all attempts to work them profitably on a small scale have proved abortive. Occasionally a steam engine has been erected, but so far, not one has been continued in operation after it has ceased to "pay its way." The scarcity and high price of fuel, not mineral, has been the chief obstacle. Mines, that under other circumstances, would prove profitable, are now unworked, and will so continue, until our upper beds are exhausted, or we have a supply of cheap fuel.

Shafts have been sunk in England, 1,000 feet, without a dollar being realized in return. This "opening up" of the mine being considered not only a necessary but essential outlay, in order to derive ultimate profits. The following facts in relation to the "Consolidated Mine," the most extensive of any in Europe, are given, that some idea may be formed of the mode in which this branch of industry is carried on there:—The mine is situated in the parish of Gwinnap, in Cornwall; and they occupy an area of 800 acres; the site is 300 feet below the sea level, and the deepest shaft is 1,350 feet below it; thus giving a total depth, from the surface, of 1,650 feet. The vertical shafts, sunk upon the different lodes, exceed twenty miles of aggregate excavation, and the levels, drifts, &c., driven from the various shafts, extend forty-three miles. The machinery employed in this mine, principally for draining, consists of eight large steam engines employed in pumping—the cylinders varying from ninety to sixty-five inches in diameter, one engine of thirty inch cylinder, and eight engines of about twenty inch cylinders, are employed in draining ore, vein stuff, &c.—being seventeen steam engines, of which four are among the largest yet constructed for any use. There is also one water wheel, forty-two feet in diameter, employed in pumping. Another thirty feet, driving machinery, and four smaller ones, for stamping ore, &c.; altogether six in number. Several horse-powers are also in operation. This force that is constantly exerted by the combined operation of this accumulation of mechanical power, when working at a moderate rate, is estimated as being equivalent to the work of 4,000 horses, and if they wish to increase their engine power to its full effective force, it would equal the power of 7,000 horses. The amount of human labor is proportional to this vast accumulation of machinery; and the number of persons usually employed in the mine is about two thousand four hundred. This is entirely independent of outsiders. These mines have paid, in an average of ten years, over two thousand dollars annual profit.

We have given the above extract from the Penny Magazine, merely to contrast the difference in mining operations in England and our country. The question naturally arises, if mining can be made profitable when carried on thus extensively in one country, why not in another? Our answer to this is, "what man has done man may do." A writer on coal says, and truly, too, "That the coal mines of England have been a source of greater wealth to her than ever the gold mines of Peru were to Spain, because they are the means whereby man obtains a direct increase of power over materials which minister to his comfort." Situated as we are, directly upon the verge of a field, which, according to good authority, contains more coal than all the mines of Europe collectively; it needs no power of prophecy to predict that the day is not far distant, when we too will see the steam engine, not only employed in bringing us fuel, but also at work in our mines, developing resources of mineral wealth, that, under our present system ot mining, we cannot profitably reach.

E. H. B.

Galena, Ill.

The Coasting Trade of France.

The French Government has just published the usual statistical tables of the coasting trade of France during the year 1850. From these it appears that the number of vessels which cleared out from the various French ports, bound to other ports, amounted in 1850 to 71,853, carrying 2,069,851 tons of goods; showing, as compared with 1849, an increase of 78,282tons. Of the above 2,069,851 tons, 1,419,000 tons were conveyed from port to port on the Atlantic or Channel coasts; 457,000 from port to port on the Mediterranean coasts; and 194,000 from the Mediterranean to the Atlantic, or vice versa, by what is called grand cabotage, or the voyage through the Straits of Gibraltar. The total amount of tonnage representing the grand cabotage trade in 1845 was 236,000 tons, and the subsequent diminution may be ascribed to improved means of internal transport between the south and west coasts of France.

Naval.

The Pensacola Gazette states that the floating dock, basin, and railway, in course of construction at the Navy Yard at that place, are each and all advancing rapidly towards completion. A large mechanical force is employed. The steam engines and machinery for the powertul pumping apparatus of the dock are being placed in their respective positions; the stone walls are nearly built in three of the five sections in the basin, and the foundation of the ship railway is in progress. Several changes have been made lately among the officers and workmen at the yard. The United States sloop-of-war Decatur, Commander Green, sailed from Pensacola on Monday, the 2nd inst., for a cruise in the Gulf of Mexico and the Caribbean Sea. She will visit Nicaragua and other points.

The Earth's Bulk.

The bulk of our planet is so well adjusted, that were it increased or diminished, the greater number of plants would die, and the animals which did survive, would lead but a burdensome existence; were it greater or smaller, denser, or rarer, it would require a change in the structure of all the stalks of the flowers. Was our earth as large as Jupiter, motion would be oppressive to every living being; the deer would crawl like the sloth, and the eagle would have no higher flight than the chimney top. In such a case, too, the air would become so dense that no animal could breathe it—perhaps no animal could sustain its weight. And were the earth to be as small as Mercury, or the Moon, the animals would be exposed to the opposite inconvenience—all our motions would be unstable, like those of a drunken man, the air would be so thin as to be incapable ot supporting life.

Death of the Modern Discoverer of Embalming.

M. Gannal, who recently died in Paris, was the inventor of the new embalming system. His career was a singular one. Apprenticed to an apothecary in early life, he imbibed that taste for, and acquired that knowledge of chemistry which subsequently proved so serviceable to him for his favorite studies. In a short time he became attached to the medical corps of the French army in Germany, and was present at some of the great battles of Napoleon against Prussia and Austria, and formed part of the medical staff in the Russian campaign. In the disastrous retreat which followed, he was taken prisoner at Wilna; but on four occasions succeeded in making his escape, and was as often recaptured. After a thousand adventures by flood and field, in 1815 he returned to France, where his acquirements soon obtained for him a place at the School of Pharmacy, and he made several curious discoveries in chemistry, which, however, with the exception of a prize at the Academie des Sciences, procured him no real advantage; until his great discovery of embalming by means of an arsenical preparation, which in a few years made him master of a large fortune.

The Telegraph in Piedmont.

An engineer named Bouelli, Director of Electric Telegraphs in Piedmont, has conducted his wires over the Appenines, suspending them from mountain to mountain, at immense altitudes and in straight lines. The poles are placed from 800 to 1000 yards apart, and the wires pass through villages and towns under-ground, out of which it emerges to the mountains, dancing from crag to crag, then again sink below the streets of Genoa, till it reaches the station of the Ducal Palace.

Discovery in Sculpture.

A recent letter from Hiram Powers, the American sculptor, states that he has effected another very important improvement in modelling for sculpture, and has also made a discovery which will prove of universal mechanical importance, having been for ages an undiscovered desideratum. The Richmond Inquirer says that on being secured by letters patent here, as is being done in England, it will doubtless be made public.

Professors.

The title of professor is one of great dignity, and is held to be one of very great importance among the dignitaries of learning. We see that McCormick, who walks head downwards on the marble slab, is called Prof. McCormick. We have professors of gymnastics, professors of dancing, professors of flute-playing, card-playing, and we do not know how many other kind of professors, all are eminent in their line, from the Italian hurdy-gurdy man to the professor who learns the little boys to shoot peas at the target at three shots for only one cent.

The Eel.

The eel is evidently a link between the fish and serpent, but, unlike the former, it can exist a long time out of the water, which its nocturnal migrations prove, though probably a certain degree of moisture on the grass is necessary to enable it to do this. That they wander from one place to another is evident I have been informed, upon the authority of a nobleman well known for his attachment to field sports, that if an eel is found on land, its head is invariably turned towards the sea, for which it is always observed to make in the most direct line possible. If this information be correct, (and there seems to be no reason to doubt it) it shows that the eel, like the swallow, is possessed of a strong migratory instinct. May we not suppose that the swallow, like the eel, performs its migrations in the same undeviating course?—[Jesse.

Niagara Falls Falling.

Two weeks ago, on a Sunday afternoon, a portion of the precipice fell with a mighty crash. This portion extended from the edge of the island toward the tower, being about 125 feet long and about 60 feet wide, from the top to near the bottom of the fall. The next day another piece, triangular, with a base of about forty feet, broke off just below the tower. But the next great performance was the most remarkable. Between the two portions that had previously fallen stood a rectangular projection about thirty feet long and fifteen wide, extending from top to bottom of the precipice. This immense mass became loosened from the main body of rock, and settled perpendicularly about eight feet, where it now stands an enormous column two hundred feet high, by the dimensions named above.

Cotton from Oat Straw.

An English paper states that an amateur chemist, of Nottingham, while engaged in testing Claussen's process for making flax cotton, tried it upon oat straw, when, to his astonishment, after the silica was dissolved, he obtained a large quantity of good straw cotton; of this we have no doubt, as paper—very coarse to be sure—is made out of straw, and shows that it contains cloth-producing material.

Hudson River Railroad.

This railroad appears to be doing a most thriving business. During the past month the receipts amounted to $5,000 per day. High as these receipts are, they will soon be held to be small indeed, in comparison with the amount that will be received in a few years hence.

Great Feat.

A captain Tompkins, at New Orleans, concluded the feat of walking 60 consecutive hours without sleep or rest on Monday last week. He got $5,000 for performing it from the medical faculty of that city, by whom it was instituted to test the powers of human endurance.

Great Cotton Crop.

During the past season Col. Qurles, on Oyster Creek, Brazoria Co., Texas, raised four hundred bales ot cotton on one hundred and sixty acres of lands, with twelve hands; the average weight of each bale was 500 lbs.

It is stated that a company of spiritual rappers have found their way to the old dominion. We hope the good people of Virginia will commence a counter-rapping with them; that is what some of them require to rap good sense into them.

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(For the Scientific American.)

Static Pressure and the Ladies.

The remarks closing an article in the Scientific American of Feb. 14, under the heading "Gwynne's Pump," renewed a sense of mystification or confusion which has, for the last week or two, oppressed me whenever I hear "Centrifugal Force" mentioned. There seems to be a sort of rotary motion momentum in my brain, evolving "a power" of questions, for which I can find no answer but "vacuum." I was first sensible of this impression during a visit to the "Static Pressure Office," in your city; perhaps it originated there, if so, doubtless a remedy may be had from the same source or any other where some clearer head than mine would solve for me these puzzling doubts, which may, after all, be only misapprehension. Am I right in supposing that, in the "Static Pressure Engine," all the power to be used comes through the central shaft connected with the rotary disc? And, if so, is the material fluid within the disc expected to act as momentum through rotary motion, while it is passing off, producing centrifugal force? And if not, from what source is that available power to come? What is to be the capacity or diameter of the screw or propellar to transmit 40 horse-power (independent of that portion of power necessary to keep the machine in motion) according to known hydro-static laws? What material is to be used to confine 30 to 40 atmospheres of pressure on a disc sufficiently large to accommodate the actual necessity under those laws?

Did I rightly understand our "New Power" friends to advance the proposition that "centrifugal force is a power evolved from rotary motion, and, like gravity, costs nothing?"

Seriously, then, does gravity 'cost nothing?' I wish I had known that before, I would have informed my young brother of the fact whilst I assisted him, one sunny afternoon, years ago, in rolling a stone (almost too great for our united strength) up a high hill, just to make a grand exhibition of the power of gravity by tumbling it from the summit into the lake below. Probably the knowledge would not have added to our enjoyment of the anticipated leaping and crashing in its descent,—but when the final plunge was made, and the answering shout and echoes died on the ear,—when the foaming spray subsided, and the waters closed in widening ripples over our model Gravity Engine,—when we sat down on the verge of the bluff, first conscious of heat and fatigue, moralizing on the propriety of laboring hours for the excitement of moments, wishing our fingers had been bruised, and dresses soiled, in a better cause,—just then, I think, it would have been a consolation to know that "gravity costs nothing." Besides we should more readily have believed it—having then only begun to learn that in this remunerative world, we must pay, in some way, not only for corn and potatoes, but for all the enjoyment we receive, and all the power we are able to exert, moral or material:—"something for everything, nothing for nothing"—had not yet become an axiom with us.

As ladies seldom interest themselves in subjects of purely mechanical philosophy, I had not dared to ask a solution of my present doubts, but for a boast made by the gentlemen who claim to have discovered a new power through static pressure, that "women and children understand and appreciate the new principle more readily than experienced mechanics," "and are more willing to aid in its practical development." Born and matured in the western wild, where opportunities for investigating practical mechanism are comparatively rare, the gentlemen will, I know, pardon my dullness of comprehension in this matter—although it does so little credit to their compliment in awarding to me "the proper phrenological developments for thoroughly understanding the new principle" or theory.

I understand they propose to give a forty horse-power, for one hundred dollars, "to ladies only." Somehow I cannot help thinking I should rather invest that amount in one handsome saddle-horse of power, because, in that case, I should not only pay for the acquired power, but should actually acquire the power paid for. HAGAR.

Highlands, N. Y., Feb., 1852.

[For the Scientific American.]

American Rifle, and Bullets.

In your paper of the 14th Feb., you have favored your readers with drawings and descriptions of the bullets used by the French and Prussians, in their new army rifles, and also the American old and new picket bullets. In noticing the latter, you have referred to and recommended my work upon the "American Rifle," in a manner very kind and complimentary, for which I feel obliged and honored. In some particulars, however, you have made some slight mistakes, especially in describing the performance of the American Rifle, and in my recommending the telescopic sight for army use. You say, "In Mr. Chapman's work there are samples of American target-shooting at 220 yards, the target being 20 inches in diameter. In one sample 10 shots can be covered with a man's hat around the bull's eye." The 20 inches on the target is not intended to denote its diameter, but the length of the string of 10 shots; and those shots in the target which you say can be covered by a man's hat, are all actually contained in a circle 3 inches diameter. These sample targets in my work are on a scale of one-fourth the size of the originals. You also make me appear to recommend that, in the army, select men be furnished with the telescopic rifle. You are here under a mistake, I recommended the use of the flat-ended picket in the American army rifle, and this on the ground of its superior accuracy at long ranges.

The occasion is opportune to give some opinions, unasked, but nevertheless not uncalled for, upon the proper system of arming, infantry. A select portion of each regiment ought to be armed with rifles using the flat-ended picket bullet, ranging accurately up to half a mile. The remainder of the regiment ought to be armed with breech-loading rifles, that is, if such breech-loading rifles can be made perfectly reliable for active service, and this fact can only be determined by experiment at home and service abroad. All rifles which *slug* their bullets, that is, all rifles in which the bullet is forced against the surface of the bore laterally, either by the over-size, or the spreading of the butt, or the upsetting of the bullet, are certain to perform irregularly; that is, more power will be applied to the bullet at one discharge than another, arising from the impossibility of forcing out or upsetting the bullets twice alike, and consequently their resistance to the powder will be inconstant. This is the reason why your recommendation of a small chamber in the butt of the flat-ended picket bullet would destroy its accuracy in fine shooting. I have no means of practically judging of the accuracy and efficiency of Sharpe's rifle, but if reports be true, it is much ahead of the ordinary breech-loading rifles. I am free to confess that I have not much faith in a breech-loading rifle, and if Mr. Sharpe has succeeded in making one that will stand rapid firing without breaking or sticking fast, he has achieved that for which he ought to receive a fortune.

It must be remembered, however, that these rifles must be so proportioned, that when the command, "fix bayonets," is given, the men shall stand, in a charge, equal to the musket-armed infantry of Europe. Clubbing rifles may do well, occasionally, against Mexicans, Greasers and Indians, but it would signally fail in a field fight against Russian or German infantry. The reason why the inaccurate musket has so long maintained its ground, as the principal arm of infantry, is no doubt attributable to the fact that it is better suited for bayonet practice than the rifle, and also exactly suitable to the blundering capacity of the common soldier. Musketry, at 200 yards, is like "playing at cards for nothing;" accurate rifles in the hands of Americans, at that distance, would swath men like grass before McCormick's Reaper. The weapons of war ought always to be made to conform to the intelligence and ability of the soldiers who are going to wield them, and the American people are eminently qualified to be armed in progressive advance of the nations of the earth. In arming infantry, it should be considered as a fixed fact, that great battles are never decided at long ranges, but that the close and murderous aim of the infantry, the rapid and overwhelming discharges of the horse-artillery, with the unflinching and appalling charge of the bayonet, decide the hopes of men, the fates of empires, and the fears of kings.

It is evidently the duty of our government to foster and encourage all good fire-arm inventions, from a colombiad down to a primer. Colt's revolvers, Sharpe's breech-loading rifles, picket bullets, and Maynard's primers, would be unintelligible to a people less capable than the "Universal Yankees."

JOHN R. CHAPMAN.

Oneida Lake, Madison Co., N. Y.

[The following are engravings of two strings of 10 shots each, made by John R. Chapman. Figure 1 is a string made by him on March 10th, 1848, with one of Edwin Wesson's rifles, with globe sights. The target was placed at a distance of 220 yards; the string is 15 1-8 inches; the shots were made at rest.

FIG. 1.

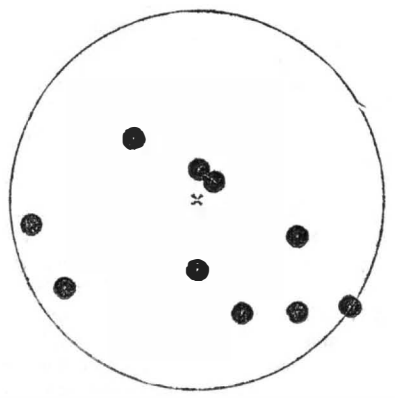
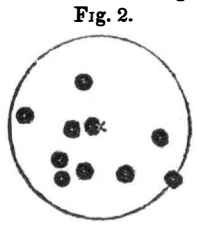


Fig. 2 is a string of 10 shots, at rest, the target placed at 110 yards' distance—the string is equal to 7 3-4 inches: they were made on the 2nd of November, 1847, with one of Edwin Wesson's rifles, with telescopic sights.

The engravings are on a reduced scale, but the original targets are in our possession, and we will give their true circumference. From the centre of the target, fig. 1, to the circumferential line—the centre of the extreme shot—the distance is 2 6-10 inches; the same distance, from centre to circumference—radial line of fig. 2—the length is 1 2-10 inches: in the latter case, 10 shots are placed within the radii of 1 2-10 inches. As the Scientific American has a considerable circulation in Europe, the above will show to the military gentlemen of England, France, &c., what we do here with American shooting-irons.

FIG. 2.



We see it stated in the Hartford (Conn.) Times that Mr. C. Sharpe is manufacturing his breech-loading rifle in that place, and that it is very effective at 2,000 yards. Like Mr. Chapman, we do not see how it is more correct or can carry further than any other,—it is a good breech-loading rifle. We have one of Nippes' make, but unless Mr. Sharpe shall throw some more light on the subject, we must look upon the statements made about it with caution. We have seen a statement in a Philadelphia paper, that Mr. Lewis Michael, of Hanover, Pa., in seven consecutive shots, at 100 yards, put 5 shots in the centre of the target, and the other two were only 5-8ths of an inch from it.

The Flax Movement in Ireland.

The Belfast papers of a late date report, at great length, the proceedings at the annual meeting of the Royal Society for the promotion and improvement of the growth of flax in Ireland. The present demand for flax in Ireland is about double what it was when the Society was established. In 1841, the Irish spinning trade numbered 250,000 spindles. Now it is close upon 500,000. In place of 16,000 tons of flax, which was the extent of consumption in 1841, 32,000 tons are now required by the Irish trade. The entire consumption of the United Kingdom would, at present, require 500,000 acres of flax annually, and it is progressively increasing at a pretty rapid rate.

For the Scientific American.

Steam Navies.

Your notice in No. 24, Scientific American, recalls to my remembrance, that somebody has made a most important error in comparing the tonnage of the British and United States Mercantile Steam Marine: in the United States the tonnage is still calculated on the actual length, breadth, and depth of the vessel, without regard to form or to the room occupied by the boilers, engines and fuel. On the contrary, the length occupied by these is deducted in the English length for tonnage; all the rest of the vessel is measured on the principle of conic sections, so that a *full* built vessel, of a given length, breadth, and depth, will measure much more than a *sharp* vessel, whose initial dimensions are the same; and these calculations, in their results, will not vary three per cent. from the true available tonnage, in either a sailing ship or steamer.

The American rule is,—multiply the length by the breadth, and this product by the depth, then divide this last product by 95—the quotient is deemed the true tonnage. By this arbitrary and Procrustean rule, a sharp clipper ship will have to pay dues on many more tons than she can carry; while the full built *crawler* will pay dues on many *less* tons than she can carry. By the operation of the English mode, in measuring steamships, at least one-third of the capacity is deducted, as being appropriated to the engines, boilers, and fuel. No such deduction is made in the American measure, consequently, in an equal number of vessels of each country, and all of the same linear dimensions, the American vessels would appear to have fifty per cent. more tonnage, when the fact is not so. If this one-half is added to the English actual tonnage, or the one-third deducted from the American arbitrary tonnage, the balance will be less imposing, but more true, by showing the two countries nearly on a par, as to the tonnage of the mercantile steam marine.

But there is the important difference that England has at least ten ocean steamers to every two river steamers; while the United States appear to have about ten river steamers, to every three ocean steamers. And, as you say, England can blockade all the ports of Europe, and still have enough to defend her own coast: including her military marine, of both classes, and the available mercantile steam marine, she can, in three months, gird the coasts of Europe with 600 sail of vessels, and yet have from 250 to 300 at home; and, taught by past experience, the *defensive* warfare of Britain will, in future, be *aggressive*. *Nous verrons.* W. S.

Steam Yacht for the Pacha of Egypt.

One of the most gorgeous and splendid specimens of naval architecture which has ever been produced—is now being constructed for the use of the Pacha of Egypt by Messrs. Tod & M'Gregor, of Glasgow, Scotland. Her engines, of the most beautiful make and finish are of 300 horse-power, the frame work is of iron, and being intended only for pleasure trips on the Nile, she will not draw more than 4 feet 2 inches of water; she is to be called "The Light of Heaven." The fittings of the interior are of the most gorgeous character, consisting of papier-mache ornaments and rich brocaded silks, which will alone cost $100,000. The ceiling of the saloon will be divided into a number of panels of rich white silk, having upon the centre the device of the crescent and the star, encircled with most elaborate and richly colored wreaths of eastern flowers of silk. The borders of the panels are to be richly ornamented with Raffaelesque decorations. Other portions of the ceiling, between the beams, are to be covered with silk of a white ground, and groups of flowers formed with gold thread. The panels on the side are formed of papier-mache. The ottomans in the saloon are covered with cloth of gold, formed with a warp of gold and weft of glass thread. The awning of the deck is to be formed of richly brocaded silk, the fringe being of gold and costing $100 per yard. The cost of the silk for the awning will not be less than $10,000. The officers' rooms are also fitted up with brocades of the richest character and color, differing only from the other portions of the vessel in not having gold embroidery.

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NEW INVENTIONS.

Improved Breast Collar for Horses.

Mr. P. F. Hicks, of Bristol, Ontario Co., N. Y., has taken measures to secure a patent for an improvement in Breast Collars for horses, which consists in making the collar of such a form that the shoulder-blades of the animal are allowed free and expanded action when going fast or drawing heavy loads. The collar is an elastic one, with the lower part forming a loop, and the upper ends bent over at right angles with the sides of the bow. It is well known that the common stuffed collar has a kind of choking effect when a horse is drawing a heavy draft, and for this reason many have preferred the Dutch harness, which has no collar. This collar obviates that evil, and presents all the advantages of the stuffed one.

New Plan of Attaching Traces to Hames of Harness.

Mr. James Turner, of East Nassau, Renssalaer Co., N. Y., has taken measures to secure a patent for an improved mode of attaching traces to hames, which consists in placing a catch upon the lower ends of the hames, the said catch being a perforated slide working in a socket, the slide being attached to one of the hames and the socket to the other. A pin attached to a shank passes through the socket, and fits in the holes of the slide, and it can be placed in any hole in the slide, so as to expand or contract the hames to suit different sized collars. The traces are attached to the hames by the same catch, essentially, so that the trace can be so placed in the slide as to lengthen or shorten it, as may be required.

Improved Mode of Hanging Reciprocating Saws.

Mr. Edmund Booth, of the City of Philadelphia, has taken measures to secure a patent for a new mode of hanging reciprocating saws. A lever is employed which works freely in a vertical slot cut in an upright post. The lever is attached at one end to its link, which connects it to a spring secured to the top of the saw mill, and at the other end it is secured to the up guide-rod of the saw. The object effected by this lever is to prevent the saw from *buckling*—a common evil.

Improved Hoop for Cheese Presses.

Mr. John Beach, of De Ruyter, Madison Co. N. Y., has taken measures to secure a patent for an improved hoop for cheese presses, the nature of which consists in providing a hoop, having two equal parts, said parts being connected by a hinge on one side and a catch on the other, by which arrangement the hoop may be readily taken from the cheese which it encompasses, and also readily re-adjusted to it. Our farmers will see what this improvement is at once.

Improved Truss.

Mr. John North, of Middletown, Middlesex Co., Conn., has taken measures to secure a patent for a very useful improvement in that too-much required alleviater of human suffering, the body truss or supporter; it relates to a new and simple mode of attaching any pads, but more particularly the inguinal and umbilical truss pads, to the body springs, or to the abdominal or any other of the pads supports, whereby their pressure on the part that has been rendered weak from a strain or any other cause, may be adjusted with the greatest precision.

Improvements in Grinding Mills.

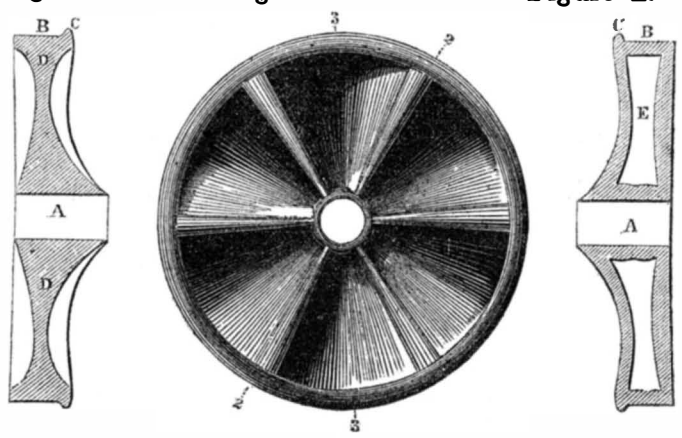
Mr. J. T. Harvey, of Murraysville, Westmoreland Co., Penn., has taken measures to secure a patent for an improvement in mills for grinding grain, which improvement consists in employing a burr stone having a conical cracker attached to its face, operating in combination with a conical-shaped case, to crack and partially grind the grain before it passes between the burr stones, all at one continuous operation, and all combined together in a very simple and admirable manner.

Another Rat Trap.

Mr. John I. Vedder, of Schenectady, N. Y., has taken measures to secure a patent for a new and improved rat trap, one, it is said by some, that will make the rats scarce wherever used. This rat trap not only makes the rat catch himself, but drown himself at the same time, and more than that, he adds rat-murder to suicide, for in the act of nicking his own fate, he re-sets the trap for another rat without so much as leaving a solitary line of warning, like that which used to be on the old Schenectady canal packets, viz., "passengers are requested not to stand on deck under the penalty of being knocked down, killed, and drowned by the bridges."

WOODRUFF RAILROAD WHEEL.

Figure 3. Figure 1. Figure 2.



The accompanying engravings represent the patented Wheel of Mr. Horace W. Woodruff, of Watertown, Jefferson Co., N. Y.

Figure 1 is a face view of the wheel; fig. 2 is a section taken at the line 2 2 of fig. 1, and passing through the hollow plate; figure 3 is a like section taken through the solid plate 3, of fig. 1. The same letters refer to like parts.

The nature of the invention consists in casting the wheel in one piece, with a chilled rim connected with a solid undivided hub by means of a plate, which, at certain parts, is single, and solid in the direction of the radii, acting in the manner of radial spokes, presenting curved lines, in concentric lines, on both faces, from hub to rim, and the whole constituting one casting. A is the hub with a central hole to receive the axle: B is the rim with a flange, C, as usual. The wheel is so moulded that its two faces are corrugated as represented in the engraving. The parts, D D, are solid, so that imaginary radial lines from the hub to the rim, as at D, will pass through the solid metal. At these parts the external surface is curved on both faces of the wheel, extending from the ends of the hub to the edges of the rim, or nearly so, as at D D, fig. 3. The flange side of the wheel extends outside of the plane of that face of the rim, and on the other face it coincides, or nearly so, with the plane of the rim; E are spaces between the solid parts, D; they are cast on cores, and form two plates between any two of the solid parts. The two plates gradually spread out from each other from each solid part or spoke. These plates are, therefore bent or waved in lines concentric with the hub and rim, and the plates on the inner side are bent from hub to rim. On the outer face of the wheel the plates are partly bent and partly straight. The rim and hub are connected together by a plate, which, at certain parts, is single and solid in the direction of the radii, forming what may be termed radial spokes, and at other and intermediate parts double, and constituting hollow spokes. It is therefore a compound plate, giving support to the entire periphery of the rim, and acting as a brace to the ends of the hub and edges of the rim, to resist lateral strains; and the solid parts of the plate, constituting the solid spokes, give the required support in the direction of the radius; this support, being aided by the double parts of the plate (which are bent from hub to rim and in concentric lines), can yield to the unequal contraction, and thus enable the solid parts to resist the strain without breaking, which is due to unequal contraction. The claim is for "casting a railroad car wheel with a chilled rim and solid undivided hub, connected by means of a plate which is single and solid at certain parts, so that imaginary radial lines, from hub to rim, will pass through the said solid parts, and be double and bent in opposite directions, between the single and solid parts, and wholly or partly from hub to rim, the whole constituting one casting, as specified."

More information may be obtained by letter addressed to Mr. Woodruff, as above.

PROF. PAGE'S ECONOMICAL CONSTANT BATTERY.

Figure 1. Figure 2.

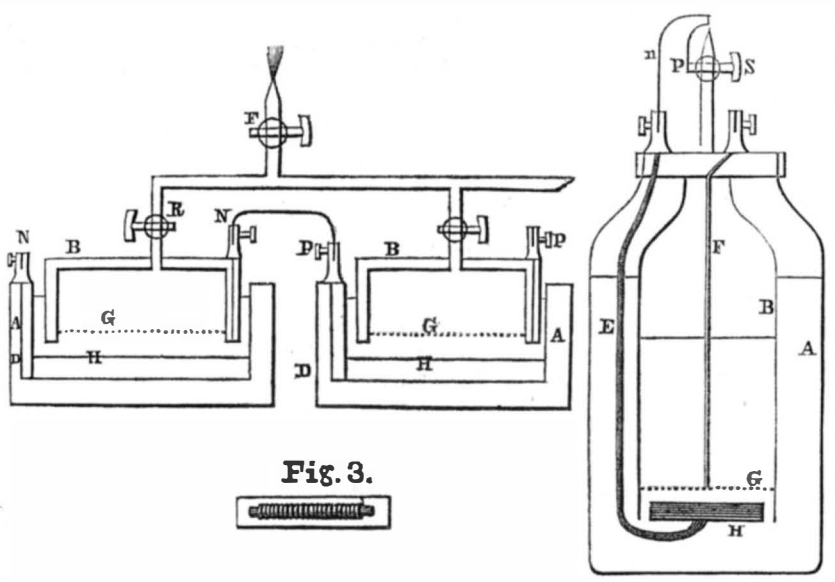


Fig. 3.

The accompanying engravings represent an Economic Constant Battery, invented by Dr. Page, of the Patent Office. His description of it is published in the last number of Silliman's Journal of Arts and Sciences. The battery is a modification of Kemp's, and was invented in 1838.

Figure 1 exhibits two economical batteries, constructed upon the basis of Kemp's, and involving the principle of Smee's battery. A is a square box of wood, made tight by pouring a quantity of warm shellac varnish into it, and pouring it off after the wood has absorbed a sufficient quantity. If the outside of the box is first varnished it will always leak; B is an inverted wooden box, varnished in the same manner; G is the negative conducting plate of the battery; it is made of wire gauze or a perforated plate. The best material Prof. Page has found for this plate is a perforated plate of silver, platinized: this is expensive, and so is wire gauze. It occurred to Professor Page, that, by precipitating copper on coarse muslin, that this might be silverized and then platinized so as to answer. Mr. Matthiot, of the Coast Survey, the author of the excellent articles on Electrotyping, &c., in our last Volume, says this is perfectly practical. Mr. Matthiot, from his own suggestions, has adopted this battery in some of his experiments, and thinks highly of it. [James Napier, of Swansea, Eng., took out a patent a number of years ago, for precipitating copper on cloth, muslin, &c., for making roofs of buildings, &c., Mr. Napier is a first-rate practical chemist.]

H is the amalgam of zinc; D its connection from the wire; P N are the poles of the battery. The connection with the zinc positive plate is made by passing a wire down through the wood, and connecting it with the platinized negative plate, G, in a similar manner. R is a cock of the pipe, F, which exhibits a jet of ignited hydrogen gas. The gas can be ignited by a spark from the battery. The object of the cover is to confine the hydrogen so as to drive it through the pipe, F, and use it for any necessary purpose. The gas which escapes from a galvanic battery, is hydrogen—it is one of the gases of the decomposed water. Figure 2 is a battery upon the same principle; A is the glass jar, to hold the acidulated water; B is the inner jar and hydrogen receiver; G is the perforated negative plate; E is a wire connected with and supporting the zinc plate; F is a wire connected with the negative plate, H. The stop-cock, S, and its pipe are connected with one pole of the battery through the medium of the wire of the helix surrounding the magnet, fig. 3. The spring wire, P, is attached to the plug of the stop-cock, upon turning which the spring wires are brought into contact and separated, producing the spark that ignites the jet. This magnet is well covered with cement, and concealed within the cover,—it is required to produce a spark of sufficient intensity to ignite the gas. The battery must be allowed to work so as to expel all the air before the gas is ignited; if this is not done, an explosion will surely be the result. When the battery is started, the wires at the top must be bent down till all the air is expelled.

Submarine Explorer.

An experiment was made with the submarine explorer (illustrated on page 81, this Vol. Sci. Am.), at the Navy Yard, Brooklyn, on Friday, the 5th inst. It was moved in water 35 feet deep, and at a signal from Com. Salter, it commenced descending. It was out of sight in ten minutes, and after remaining under water twelve minutes, the signal was given for it to rise. In 2½ minutes it was on the surface, at about twenty-feet distant from where it went down. The experiment was very satisfactory to the officers of the Navy Yard, but not to Mons. Alexandre, he thought they did not allow sufficient time under the water to test the qualities of his under water propeller.

The Wheeling Bridge Case.

The following are the leading facts in this important case —

1. The Wheeling bridge is 92 feet high, and has a clear span of 1,010 feet, being erected without piers.

2. The extreme floods in the Ohio, which the court allow to be considered in the cause, rise 30 feet high.

3. Boats with chimneys not exceeding 60 feet in height, can pass under the bridge on the highest flood recognized by the court.

4. There are seven steamboats, built recently, which have raised their chimneys to heights varying from 70 to 80 feet, and which claim the right to pass the bridge, in any stage of the water, without lowering their pipes.

5. To accommodate these seven boats, the Supreme Court has decided that this structure which cost more than two hundred thousand dollars, must be abated.

6. The plans of the bridge were published two years in advance of its erection, and no complaint or objection was made until the Bridge Company had expended their entire capital. CHARLES ELLETT, JR., C. E.

Artificial noses and ears are now made of india rubber. Artificial hands, &c., are also made. It is generally believed that india rubber will never be required to supersede the the material of which the great number of consciences are made.

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Scientific American

NEW-YORK, MARCH 13, 1852.

To Subscribers.

This is the 26th Number of Volume 7 of the Scientific American—completing the half volume. We can send all the back numbers of the volume to new subscribers, and shall be happy to do so to as many as desire to possess them. We believe that no mechanic, artisan, inventor, or lover of useful knowledge, can be posted up on the progress of the arts and sciences, who does not take the Scientific American. The reason of this is very evident, it being the only paper exclusively devoted to collecting, arranging, and discussing questions relating to such subjects. It is the only paper in the United States that publishes an Official List of all the Patents granted every week, with the claims of the patentees. It is invaluable to all those interested in patents.

We hope our friends will send in their subscriptions as soon as possible; this volume will be the best ever published. A friend of ours has said to us, he "would willingly pay his subscription to obtain merely the mechanical engravings that appear in our columns;" they are the finest specimens of mechanical engravings on wood ever presented to the American public.

Priority of Discovery.

Steam navigation, railroads, and the electric telegraph, have so linked together the whole civilized world, that men of science and inventors live and act, as it were, in one vast hall, separated only by the arch of a mountain here, and the aisle of an ocean there, but all within the sound of the hammer of the press, which, whether it be in America, or France, Prussia, Denmark, or England, soon concentrates the whole attention of the assembly. Whenever a discovery is made in one part of the world, it is at once sent flying to another, either on an electric bolt, or the wings of steam, and in a very time it flames out in bold relief, through the columns of the press, to challenge and gain the admiration of the world, according to its grandeur or worth. There is now a general and active contest for priority in discovery, and the arbiter in the case is the first public account which is given of the discovery or invention. The press, and the means now employed to communicate intelligence so rapidly from one place to another, have stimulated the spirit of investigation to a wonderful degree. It will not do now for a man to sit quiet upon an important discovery, as did Sir Isaac Newton, for years; no, nor for months, and perhaps it is not safe to do so for a day. If he does not come forward at once, he is liable to lose the whole merit—and profits, too, if there be any—of the discovery, for who can tell but another person, in a different place, may make a like discovery the next day or week, and if he first communicates a knowledge of it to the world, he will reasonably be looked upon as the first discoverer. How many inventors have we known who procrastinated to secure their inventions for some time after they were fully matured, and, by so doing, found that others had been before them but a short time—long enough, however, to render all their toil, study, and expense nothing but mementos of their dilatory conduct. Discoveries and inventions succeed one another so rapidly, now, that it will not do for men to sleep over their matured inventions; he who is first must prove himself to be the successful competitor by appearing first at the arbitrator's stand. It is reasonable to suppose that there are many men, in various parts of the world, now investigating the same subject, or studying to improve the same machine, or they may be resolving and re-resolving the same problems. More than one may make the great and desired discovery at the same time, but he who first makes his discovery public will justly be entitled to the claims of priority, and be entitled to the honors and emoluments, whatever they may be, which flow from the legal title of originality.

It is no wonder to us why there are now so many claimants for every new and useful discovery. The struggle for priority of invention is a battle and a race, and sometimes the race is not to the swift nor the battle to the strong, but to the wise and the prudent.

Within a very few years there has been a controversy between Prof. Wheaton and Mr. Bain, about who was the inventor of the Telegraph Clock. In 1849 there was a like controversy between Prof. Mitchell and Dr. Locke, of Cincinnati, about who was the inventor of the Electric Astronomical Clock. Quite a number of controversies have taken place between different claimants of inventions and discoveries; we do not know of a single great and good invention that has not been claimed by more than one person. These things can easily be decided now, by the rule of public arbitration. It is not enough for a man to say, now-a-days, "I studied out that invention years ago, and spoke about it to this, that, and the other person, but did not then complete it." This will not do; there never has yet been an improvement made that did not engage the attention of quite a number of persons at some time of their lives. The man who consummates and brings out his invention first, is justly entitled to be called the original inventor.

Gas for Illumination.

France claims, with England, the honor of first using gas for illumination. The first notice that we have of the production of coal gas, artificially made for illumination, is a letter published in the Philosophical Transactions, in 1739, but the said letter was addressed to Robert Boyle, the philosopher, by Rev. Dr. Clayton, of Kildare, Ireland, and Boyle died in 1691. Before coal gas was employed for public illumination, it used to be made for experiments in colleges. It was not until 1798 that it was first practically applied for lighting a building. The idea of applying coal gas for general illumination seems to have occurred first to Mr. Murdoch, a Scotch engineer, employed by James Watt, and residing in Redruth, Wales. In 1792 he commenced a series of experiments and produced gas enough to light up his own house and office. Five years after that he put up a gas apparatus in Scotland, and in 1798 he put up a gas apparatus at the engine works of Messrs. Boulton & Watt, at Soho, England. He continued his experiments for a number of years, and very little general attention was paid to them, until upon the occasion of a public illumination, when he lighted up the front of the factory so brilliantly, that the news of it soon flew through all the country, and many then wanted to claim the credit of the discovery. To Mr. Murdoch belongs the whole credit of practically demonstrating its utility, and to no one else.

Coal gas is made by placing cannel coal in a red-hot cylinder of clay or iron, and sealing it up tightly, A pipe leads off at one end, and through it the volatile parts of the coal pass off in the form of gas; this gas passes through lime water before it is allowed to enter the reservoir. The lime water absorbs the ammonia and sulphurous gases contained in the coal: the gas is thus purified, and after it leaves the lime-water it is passed through cold water, which cools and washes it. Before the way to purify coal gas was discovered, the sulphuric acid gave great trouble; it blackened white painted walls, and burned hangings, &c. This way of making gas is now in general use. It is still the cheapest gas produced.

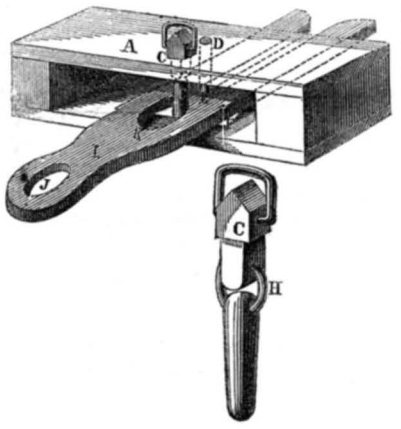
Gas made from oil does not require to be purified. The process to make it is cheaper, but the material is dearer. The coke, or residuum of the coal which makes the gas, is taken out of the retort and used for fuel. Coal gas is composed of hydrogen and carbon. The white light is solid particles of coal in an incandescent state. Hydrogen gives only a faint blue light. Dr. Hare, of Philadelphia, was the first person who made the discovery that, by directing a stream of oxygen and hydrogen upon a piece of clay, it became incandescent, and gave out a bright light. Sir Humphrey Davy first discovered that platina became incandescent in a stream of ignited hydrogen gas.

Mr. Goldsworthy Gurney, a very eminent English inventor, residing in *Bude*, Wales, from which the Bude Light gets its name, in 1839, passed coal gas through naphtha, and discovered that its illuminating properties were increased by the gas absorbing some of the naphtha.

The gases of water (hydrogen and oxygen) have often been proposed for purposes of illumination, but they cannot be used like coal gas, not having any carbon in them, as they give a feeble light unless directed on a piece of lime. In 1833 a gentleman of Brussels, in Belgium, passed water gases through naphtha, and made a good light. In 1834 a Mr. Constable, in England, took out a patent for passing steam through red-hot anthracite coal, then passing the hydrogen thus generated, mixed with a certain portion of the air, through turpentine, to improve its luminosity. In 1848, J. C. Robertson obtained a patent in England, for distilling a mixture of resin, saw-dust, potash, and lime, and passing the vapors thus obtained over red-hot surfaces, thereby producing a gas fit for illumination. White's method of making water gas is to drop water into the top of a red-hot iron cylinder containing wood charcoal, at the bottom of which is red-hot scrap-iron: the iron absorbs the oxygen; the hydrogen passes off by a pipe at the bottom into a horizontal red-hot cylinder, in which it meets with the vapor of resin, which is made in another adjoining retort. The two vapors are thus mixed, and, passing off through water, are cooled, when they pass to the reservoir; this gas makes a very beautiful light.

These are the heads and particulars of the history of gas illumination,—we present them because we have received quite a number of letters on the subject lately. Let us say, here, that Dr. Gesner, of Halifax, Nova Scotia, has a United States patent for a very beautiful and economical method of making gas from petroleum. Mr. Crutchett (we do not know where he now resides) has also a United States patent for an improved apparatus for making gas.

Patent Car Platform and Coupling.



The accompanying engravings represent the improved Car Platform, in combination with the jointed self-acting pin and stationary pin, for coupling and disconnecting cars, invented by Mr. George Winters, of Portsmouth, Dauphin Co., Pa., and secured to him by patent in the month of September last.

A is the platform, commonly called the car-bumper, at each end of the cars, with a division forming an upper and lower flooring. The upper flooring has a square aperture for the square part of the jointed pin, C, to rest in, and a round aperture, D, in which a stationary pin, E, is firmly fastened. The inner face of the upper flooring is bevelled off from the square aperture so as to allow the jointed pin, C, room to operate. The lower flooring has a triangular-shaped aperture, F, bevelled off from the sides of the aperture to the inner face of the flooring, for the lower part of the jointed pin, C, to operate in the different directions; the jointed pin operates as a self-acting coupling and disconnecting pin, with a square head at the top, having a handle or lever attached to the head. The pin is made square from the head to the joint, H; the lower part of the pin is rounding, and is of a length to suit the platform. I is the half coupling or forked-tongue, formed by a groove in front, and two oval apertures or eyes. By the eye, J, this half coupling, I, is connected to one car, whilst the centre eye, K, receives the jointed pin, C, and thus connects the cars. The forked ends of the coupling, I, pass on each side of the stationary pin, E, which is located behind the jointed pin, C, which serves as a fulcrum for the forked ends to operate on, and whenever the front car is thrown off the track, the lower part of the jointed pin, C, is drawn to the side, and immediately disconnects itself from the half coupling, I.

The claim is for the shape and construction of the improved Car Platform, in combination with the jointed self-acting pin, stationary pin, and grooved half-coupling, as described, for the purpose of coupling and disconnecting cars.

More information about rights, &c., may be obtained by letter addressed to Mr. Winters.

McCormick's Reaping Machine Claimed as an English Invention.

Petitions for an extension of the patent of Mr. McCormick, we see, are now before Congress. It was extended, we believe, once before. We see it stated, in some papers, that Mr. McCormick recently gained "a suit in the Supreme Court of the United States, sustaining his title as an original inventor. This was an appeal from the Circuit Court of the United States, in Illinois, which had awarded to Mr. Gray, McCormick's partner, half the manufacturing profits of the concern, and to Mr. McCormick one-fourth. The Court reversed this award unanimously, and awarded to McCormick one-half of the profits, and to Gray one-fourth of them."

The extract is a quotation from an exchange, and involves a great blunder somewhere,—it is perfectly unintelligible to us. It has, however, been extensively circulated. Mr. Benjamin Cheverton—the same gentleman who made such a mistake about the Scientific American, in respect to Mr. Frost's *stame*—has written a letter to the London Mechanics' Magazine, claiming the Reaper of Mr. McCormick to be an English invention. He states it was invented in 1822, by one Henry Ogle, of Errington, near Alnwick, and that it is described in Vol. 5, page 50 (1825), of that Magazine. He says, "All its principal features are identical with those of the American Machine; there is the oscillating knife, with teeth in advance, in connection with which it acts; and there is a revolving beater to lash back the grain upon the knife." He says, the only difference in the two machines is the way of oscillating the knife, "which, in the American machine, is more mechanically arranged." He says McCormick's Reaper is just a re-invention, and he writes the letter so as to prevent the Jury of the Great Exhibition printing, in their Report, that the prize awarded to Mr. McCormick was for an original invention.

All this appears to us as something passing strange. Why was not this discovery made when Mr. McCormick was in London? and why did not the Editor of the London Mechanics' Magazine detect "the re-invention" before the scrutinizing Mr. Cheverton. We have not the volume referred to in our possession, but we venture to say that the description of Ogle's machine there, makes out the two inventions to be far more dissimilar than Mr. Cheverton would now endeavor to persuade the world that it does.

A few words from Mr. Robertson, the Editor of the London Mechanics' Magazine, upon this subject, would confer a great favor, not upon us merely, but upon the whole of our American people. The invention of Mr. McCormick is original with him, this Mr. Cheverton, nor any one else, will doubt; Mr. McCormick would not have gone to England with an invention which was known to him as a re-vamped English one.

If Ogle's Reaper, described in Vol. 5 of the Mechanics' Magazine, is the same as Mr. McCormick's, it is exceedingly important that this should be known to Mr. McCormick and others, in respect to the claims of his patent. We hope that correct information on this point will soon be forwarded to us from London.

Woodworth and Emmons.

A statement has been circulated that Judge Harris, of Albany, N. Y., had testified that Emmons confessed to him before he died, that he had acted fraudulently in the case of the Woodworth patent. Mr. Keller, in his argument says, "Emmons was an instrument used by his associates to commit fraud." The father of Emmons, now an old man, says that his son never made such a confession, and that the statements about his son committing fraud are all *falsehoods*. It is a great sin to tell untruths about the dead, for they cannot rise up and correct the evil.

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LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MARCH 2, 1852

LIFE PRESERVERS—By Stephen Albro, of Buffalo, N.Y.; I claim the sectional berth bottoms, as represented.

STEAM BOILER—By Wm. Barnhill, of Pittsburg, Pa.: I am aware that it is not new to locate a cylindrical water vessel in the flue of a boiler, and also, that such vessel sometimes contained flues, but these flues were, in this instance, direct flues, and the fire-box was placed outside of the boiler proper.

I claim the arrangement of the cylindrical boiler, having return flues therein, within the flue of the main boiler, in such manner that the front end of said cylindrical vessel extends over the fire-grates, and so that nearly its whole outer surface is exposed to the action of the flames, gases, &c., which, after their passing through the annular flue, proceed to the chimney, through the small flues in such cylindrical vessel.

[Not very different from the one on page 192 Sci. Am.]

GRAIN DRYERS—By H. G. Bulkley, of Kalamazoo, Mich.: I claim so arranging an open steam box or pan, in connection with the fire chamber and steam chamber, and flue, for the escape heat, that the steam shall rise freely into the steam chamber, and the heat kept up by contact with the escape flues, as described, for the purpose of producing a high degree of heat, yet not so high as to injure the grain or other materials to be dried by its agency.

OMNIBUS REGISTERS—By F. O. Deschamps, of Philadelphia, Pa.: I claim the use of the ratchet wheel and its pawl, or their equivalents, for the purpose substantially as set forth, of preventing the possibility of giving a blow to the hammer by means of a recoil of the wheel.

I also claim the combination, substantially as described, of the toothed wheel to which the dial plate is affixed, with the notched cylinder and click, whereby the dial plate for registering the concealed dial plate, or any number of fares marked on the dial plates, substantially as set forth.

CHAIRS—By G. O. Donnell, of New London, N. Y.: I claim the construction and application of a metallic combination to the lock posts of chairs, so as to let the chairs take their natural motion of rocking backwards and forwards, while the metallic feet rest unmoved, flat and square, on the floor or carpet, or any other metallic affixion, substantially the same, and which will produce the intended motion.

CAST-IRON CAR WHEELS—By Orson Moulton, of Blackstone, Mass: I claim connecting the hub and rim of railroad wheels, by curved parts, having raised or projecting ribs of cyma form on their inner sides, extending also across the inside of the rim, the said ribs on each plate being placed opposite the middle of the spaces between those on the opposite plate, and each rib terminating in the opposite plate to that on which it stands.

KNITTING LOOMS—By William Henson, of Newark, N. J.: I claim, first, the relative motions of the needles, hooks and presser, as combined, to form the looped or knitted fabric, in combination with the stops or guards on the hook bar, to prevent the pressure from coming in contact with the hooks, the whole being constructed and arranged substantially as set forth.

Second, I claim the combination of mechanism for regulating the take-up motion, according to the quantity of fabric formed, without varying the tension of the fabric, as described.

COTTON PRESSES—By Lewis Lewis, of Vicksburgh, Miss.: I claim the arrangement described, of a vertical revolving press, with toggle joint, operated by the toothed racks and fixed pinions, substantially as set forth.

PLATES OF TRUNK LOCKS—Conrad Liebrich, of Philadelphia, Pa.: I claim the guard, constructed and applied as described, by which the lock is prevented from being wrenched or torn off from the article to which it is attached, and by which the hasp is prevented from being pryed or twisted, so as to be freed from the bolt, thus obviating the necessity of the ordinary back plate, as set forth.

BLASTING ROCKS UNDER WATER—By Benj. Maillefert, of New York City: I claim the blasting of rocks under water, by placing the explosive charge on or against the surface of the rock to be blasted, and using the surrounding water as the means of resistance to the explosion, substantially as specified.

[We should like to inquire of the Patent Office if this invention is the discovery of Mons. Maillefert? We understand it to be public property—a well-known invention—nothing new at all. The whole plan, operation, and principle of it, with full illustrations, were published in the Illustrated London News, May, 1845; also in the same paper in 1849. The invention is public property, and no man has a right to a patent—it is giving away the property of the people. The patent could not be sustained in any of the United States' Courts. Those who have the Illustrated London News, as we have, of the years referred to, will be pleased to look them over, and see for themselves, that we speak only the truth. —ED]

CAST-IRON CAR WHEELS—Hiram W. Moore, of Bridgeport, Ct.: I claim the concave rings, formed and located as described, in combination with the spokes or braces, in the exterior ring, and the concavo-convex plate or partition, arranged and combined substantially as set forth.

MACHINES FOR PRINTING FLOOR CLOTHS—By Simeon Savage, of Lowell, Mass.: I claim the arrangement of the printing mechanism, the stamping down mechanism, and the mechanism for advancing the piece of cloth, or of material to be printed and pressed, or stamped, such arrangement being as described.

And I also claim the combination of the lip bar or plate, the series of bent levers, the slide bar, and the bar C, as made and operated, substantially for the purpose of seizing the selvedge edge of the cloth, and moving the piece, as described.

And I also claim the combination of mechanism, for operating the coloring carriage, or imparting to it its back and forth movements and necessary intervals of rest, the said combination consisting of the rotating shaft with its circular discs and their projections, four hook bars, together with the vibrating bars, as applied together, and operated substantially as specified.

ENDLESS CHAIN HORSE-POWERS—By Theodore Sharp, of Albany, N. Y.: I claim the combination of the bent links, the revolving drums, and the pinions, constructed and operating in the manner and for the purpose described.

BRIDGING NAVIGABLE STREAMS—By Benj. F. Lee, of New York City: I claim the combination of a canal tunnel, bridge, and road, constructed and arranged substantially as described.

FRICTION CLUTCHES—By Gerard Sickels, of Brooklyn, N. Y.: I claim, first, the arrangement of the levers and arms for operating the segments, substantially as described, by which arrangement, the segments are made to bind in the V collar, or be relieved from it, as desired, the segments, when bound in the collar, remaining in that state, the points or pivots having passed the line of pressure, unless acted upon by some extraneous force, as the moving of the vibrating slide.

Second, I claim, in combination with the arrangement of levers and arms, the V collar and segments, said segments being adjusted by screw rods and nuts, as set forth.

ENCIRCLING SUSPENDER FOR GARMENTS—By H. H. Tucker, of New London, Ct.: I claim the combination of the spring or belt with the straps and the circular pads, for the purpose of sustaining garments upon the human body, arranged substantially as set forth.

BRICK MACHINES—By S. L. Speissegger, of Savannah, Ga.: I claim the employment of the plate of the travelling mould table, operating simultaneously on the rods and pistons in the moulds, in combination with the pressing plate of a steam or other press, for the formation and delivery of brick, as substantially set forth.

CAMPHENE LAMPS—By Isaac Van Bunschoten, of New York, N. Y.: First, I claim the application of a suitable elastic packing, between the wick tube and air tube, attached in any convenient manner, in camphene lamps, for the purposes as described.

Second, I claim the application of a suitable ring or chamber around the wick tube, to receive or conduct water or other fluid to the wick, so that the light is extinguished, in case of accident, as described.

COMPASSES FOR DETERMINING VARIATION FROM LOCAL CAUSES—By J. R. St. John of New York N. Y., (assignor to the St. John's Compass and Log Company); patented in England, Dec. 27, 1851: I do not claim the invention of a new Mariner's or Surveyor's Compass, because these improvements can, in most instances, be added to compasses already in use.

But I claim the application of satellite or auxiliary needles to the magnetic compass, such needles being prepared, applied, and adjusted in the manner and for the purpose set forth, including any merely mechanical variations that shall be actual equivalents of the means employed, as described, and substantially the same as applied by me, for the purposes set forth.

[NOTE—Five of the patents in the above list were obtained through the "Scientific American Patent Agency."]

Morse's Telegraph in Germany.

We have been favored by a friend of Prof. Morse with the annexed extract of a letter, from Germany, for publication.

These testimonials from abroad must be the more grateful to Prof. Morse, on account of the hostility evinced by many of his own countrymen, and among them men who ought to be above the feeling of envy which alone seems to actuate them.

How often has Prof. Steinheil's name been held in court and in the country, as that of a prior inventor, depriving Morse of all claims of originality? Yet Steinheil, with a magnanimity which some of our learned countrymen would honor themselves by imitating, pronounces Morse's invention "unique," and recommends it instead of his own! We believe he is at the head of the telegraph system in Austria or Bavaria.

We are proud, as Americans, to see an American invention overcoming, by its own merits, European prejudices; and we are gratified that the estimable inventor finds consolation in the justice of other countries, for the harassment, slander, and infringement of rights which he suffers at home.

Thus far the courts, notwithstanding most persevering efforts to operate upon them through a misdirected public opinion, have done their best to protect his name, fame, and property, and we have no doubt they will continue to do so to the end. And we trust our esteemed countryman may live long enough, not only to hear the universal verdict which the world will pronounce in his favor but also to enjoy all the comforts and pleasures which wealth can bestow, as the reward of his ingenuity, perseverance and suffering.

Extract of a letter from Mr. Fleishman, United States Consul, to Professor Morse, dated

STUTTGARD, Feb. 1st., 1852.

"I hasten to inform you that I have succeeded in bringing the government to the final conclusion, to send you a letter acknowledging the merits of your invention, with a gold medal of Wurtemburg for Arts and Sciences. This has been semi-officially communicated to me, and I hope in a few weeks letter and medal will be on their way to Baltimore where the Consul-General of Wurtemburg, Mr. Brown, will hand it to you.

I have further asked for a more important matter to you, viz., I requested the Minister of the Interior to let me have a copy of the proceedings of the Electro-Magnetic Telegraph Convention (of all German States), held at Vienna, last autumn, which concluded to employ your system in all Germany as being the only reliable and practical one, having previously tried all others, and even Steinheil, a rival inventor and a German, pronounced yours nnique. You see they are more generous and liberal here than your fellow-citizens.

Wurtemburg was the first German State that adopted your system out and out, and I am sure you would be pleased to see your apparatus, which is most exquisitely finished—really it is a beautiful monument of your ingenuity.—[Phila. Ledger.

[The Ledger enunciates the very doctrines which the friends of Professor Morse—and one United States Court only—have violated. We wish to give every inventor his due, his just praise for his own invention, and we have never occupied any other ground. It was wrong to deny Prof. Morse a patent in England, it was wrong for him and his friends to be awarded without a jury trial—a most outrageous proceeding—the telegraph of Bain in the late trial at Philadelphia. Professor Morse's invention is unique; it is perhaps the best telegraph in the world, but it is not the only one. There are other good telegraphs, and it is wrong, very wrong, to slander the inventors of them, and not only slander but plunder them of their inventions. We have only one principle which guides us in respect to inventors, that is, justice to each one.

We feel proud of Prof. Morse's telegraph, and it has rejoiced us to see that he is reaping a bounteous reward for his invention, but while we rejoice at this, we grieve that other inventors have been only reaping the bitter fruits of persecution.

The Woodworth Patent.

The Assembly of New York, on Wednesday, last week, passed a resolution expressive of the sentiment of the people of New York, in opposition to the extension of the Woodworth Patent. The Albany Knickerbocker states that there was only one man in the whole assembly, Mr. Van Santvoord, who had the hardihood to raise his voice against the resolution. He, says the Knickerbocker, "opposed the resolution on the ground that the Legislature was travelling out of its way to advise and instruct our Senators and Representatives in Congress on a matter of a private character. Mr. Cushing knocked the stilts from under the juvenile Demosthenes from Columbia County, and showed that every man in the community was interested in preventing the further extension of the overshadowing monopoly. Col. Monroe and others followed in the same strain, demonstrating the great injustice done to the working classes of this State by the Woodworth monopoly. But four votes were recorded against the passage of the resolution."

We have received quite a number of communications on this subject lately, but have not published any of them. These communications were from parties interested in the Woodworth patent and parties opposed to it. The authors have offered to pay for them, but we considered it to be our duty not to accept the pay nor publish the articles.

We are opposed to the extension of this patent, not from personal feelings against the owners of said patent—some of these gentlemen we esteem as men; we oppose its extension upon what we conceive to be a good and honest general principle.

It may be of interest to many of our readers to know that Judge Sprague, of Boston, a short time ago, refused to grant an injunction against Mr. Norcross, of Lowell, for infringement of the Woodworth patent.

As we have great opportunities of knowing what the general feeling of our people is, about the extension, we assert, and challenge contradiction, that ninety-nine out of every hundred are opposed to it. Resolutions expressive of the feelings of the people of Pennsylvania, as opposed to the extension, are now before the Legislature of that State, and will, no doubt, pass by an almost unanimous vote.

The following are the resolutions passed by the Assembly of this State:—

Resolved, (it the Senate concur), That, in the judgment of this Legislature, the sentiment of the people of this State is opposed to the passage of any law, by Congress, extending the time of any patent heretofore granted to Wm. Woodworth for a planing machine, or to his personal representatives or assignees, or any law sanctioning or giving any force or validity to the re-issue of any such patent in 1845, founded upon amended specifications; and against any law which gives to the judgment of any court, in any personal action relating to patents or otherwise, a conclusive effort upon persons who are not parties or privies to the parties, and who have no opportunity to control the minds on any such action.

Resolved, (if the Senate concur), That the Governor be requested to transmit a copy of the foregoing resolution to each of the Senators and Representatives in Congress from this State.

The Leading Chemists of Europe.

We are repeatedly asked by our correspondents, who are, at present, the most celebrated chemists of England, Germany, France, and even of America. To comply with our readers' wishes, we append a list of those most distinguished in Europe and America. It is gleaned from conversations with persons from the several countries. France—Dumas, Regnault, Laurent. Austria—Redtenbacher and Schrotter. Germany—Rose, Mitscherlich, and Bunsen. Italy—Sobrero and Peyroni. England—Faraday, Muspratt, Playfair. Ireland.—Kane and Apjohn. Scotland—Gregory, Anderson, Thompson. America—Hare, Jackson, Rogers, Horsford, Dana.—[Mining Journal.

[The above is an exceedingly meagre, and we say unjust, catalogue of the leading chemists of the world. There are names above of men who are not yet distinguished as leading men, and where is the name of Liebig—the most prominent of all at the present moment? The name of Herepath is not there for England; nor is that of Ure for Scotland. Prof. Draper, of New York, need not feel that he has been omitted, it is no censure to be omitted from a catalogue which shows it has been made up by one not fully acquainted with the names of the greatest living chemists, or else it was made too hastily—a fault in both cases.

Oscillation of Water Falls.

At a recent meeting of the Society of Natural History in Boston, Mr. Briggs referred to a subject which had been previously discussed, namely, the oscillation of the sheet of water at Hadley Falls, which is accompanied by a loud noise and a jarring sensation which can be perceived at a great distance. It had been attributed in part to the vibration of the timber of which the dam is constructed. He had recently observed the same phenomenon at Trenton, where there is a dam of 60 feet in length, with a fall of 12 feet. Here the sheet at certain stages of water undulates through a distance, forward and back, of 3 or 4 feet, causing, by the jarring which it produces, great annoyance to the dwellers in houses in its vicinity. The dam is built of stone on a stone foundation, up to within three feet of the top, where it is constructed of timber. In this case, therefore, the oscillation cannot be properly attributed to the vibration of the dam. The phenomenon occurs when the water is about four inches deep on the dam, ceasing as it becomes deeper. Mr. Briggs found, that by inserting a board at one end of the fall, thus diminishing the width of the sheet, the oscillating immediately ceased. In fact, it was evident that it depended upon a relation between the width of the sheet, its thickness, and the air beneath it.

Of this fact every person can satisfy himself by paying attention to the falling of the water over every dam. He will see vibrations of the sheet of water always when it is thin.

Our list of claims being now printed in smaller type, our readers have at least two columns more of reading matter than they had at the beginning of this volume.

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TO CORRESPONDENTS.

J. H. S., of Md.—Yours has been received.

T. N. J., of N. H.—Your boat would not be propelled as fast as with a paddle wheel or screw—about half as fast.

A. R., of Mass.—We cannot give you a positive answer. The probabilities are in your favor.

N. A. L., of N. Y.—Your arrangement seems to be quite different from the one referred to, and we think you stand a good chance to obtain a valid patent.

C. G., of Ohio—We cannot distinguish any patentable feature in your method of constructing gates; we should understand it better from an examination of a sketch and a further description, which you can send.

R. F., of Ct.—The ball and socket principle has been applied to almost every machine known, and the adaptation of it to the Vise would not be patentable.

A. F. S., of Ga.—We cannot well attend to procuring an ear trumpet for you; it is not exactly in our line of business.

C. W. M., of Vt.—Gates so constructed as to open at the approach of a train of cars, and close after they have passed highways, &c., have been often suggested, but none have ever come into use. Heretofore all the contrivances we have seen for operating the gate have appeared impracticable.

J. B., of Liverpool.—We will get up engravings of your patent Central Fire Gun, and publish them one time, with a description, for £3. The engravings could not appear in our columns but once under any circumstances.

S. C., of Va.—If you will look into your plan for changing the reciprocating into a rotary motion, and vice versa, you will see it has the defects of the crank, and none of its merits, for it has the extra friction of the slides. The manner of changing the motion has long been known and used. No patent could be obtained.

U. B. V., of Pa.—The device represented in your's of the 5th inst. is well known and could not be patented. It is now used for many different purposes.

J. W., of Mass.—There is no possibility of getting a patent, for the same plan is old and well known.

G. B., of N. Y.—Babbitt's metal boxes are the best.

R. T. T., of Pa.—An application for a patent is now pending at the Patent Office for an invention essentially the same as yours.

G. P., of Md —The two dollars were applied as you instructed.

R., of Tenn —Yours will receive our earliest attention.

J & P. P., of ———.—The last week's Sci. Am is a suitable one.

G. W. W., of Mass.—If you like to wait we will publish full rules in some part of this volume.

J. E. A., of Conn.—Your shell bullet is the same as that used in some of our cannon, and could not be patented.

C. C. N., of N. Y.—We perceive no essential difference between your drawing of the feed cutter and the one patented by H. W. Berthelf, Esq., of Sugar Loaf, N. Y.

T. J. C., of S. C.—We are unable to inform you who does furnish the machines.

A. McQ., of Ga.—See, under head of "Correspondence," in last week's paper, the reply to C. L.

C. D. K., of Vt.—The engine and boiler has been sold. C. F. Mann, of Troy, constructs a good portable engine.

S. P., of N. Y.—You could not get a patent for the placing of the cylinder in any position to plane the boards: all positions are claimed by the Woodworth patent

A. B, of Ohio—Your Governor is new to us, and we believe it is patentable, but we do not think it is as good as other governors. The fees of the Patent Office would be $30,—our fees from $20 to $30.

W. O O., of Ala.—Your fnnds were received on the 6th inst inst., and your account balanced.

Money received on account of Patent Office business or the week ending March 6.

J. H. S., of N. Y., $30; C. B., of Ohio, $50; S. R., of N. H., $40; H. G. DeW., of N. Y., $37; C. H. P., of N. Y., $30; F. O., of N. Y., $45; G. W., of Ct., $20; J. N., of Ct., $25; J. B., of N. Y., $20; R. S. R., of Ky., $55; F. W., of Pa., $30; H. T. P.; of N. Y., $10; E. H., of N. Y., *50; W. & P., of Mass., $23; J. H. G., of Ohio, $30; T. B. W., of Pa., $29; P. L. Van H., of Ct., $30; E. G. O., of N. Y., $10.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending March 6:

S. R., of N. H.; J. N., of Ct.; J. B., of N. Y.; T. B. W., of Pa.; P. L. Van H., of Ct.; E. G. O., of N. J.

Patent Laws, and Guide to Inventors.

We publish, and have for sale, the Patent Laws of the United States. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. Price 12 1-2 cts. per copy.

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ZINC PAINTS—THE NEW JERSEY ZINC CO. will supply their pure Zinc Paints at the following prices:—No. 1, white ground in oil, 9c. per lb.; No. 2 do., 8c. per lb.; No 3 do. 7c. per lb.; brown and black, 5 1-2c. per lb.; dry white zinc 6c. per lb. White zinc paint after several years use in Europe and the United States, has been found to retain its protective properties longer than any other paint, and for whiteness and brilliancy is unrivalled; it is free from poisons; while the same weight covers from 40 to 100 per cent. more space according to surface than the same weight of lead paint. Their Brown and Black zinc paints form a hard metallic coating upon wood, brick, iron, &c, which defies the corroding action of salt water. Dealers supplied on liberal terms by MANNING & SQUIER,
1* Agents, No. 45 Dey street, New York.

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting entirely the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, are prepared to furnish an article, superior to any made in the United States, (the highest grade warranted to vary less than two minutes in twelve months). Glass dials for illumination furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.

"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 26tf.

ELLIPTICAL PATENT PLANING MACHINE for planing, tonguing and grooving boards and other materials. This machine was patented on the 23d of December last, and is in full operation at the Phœnix Steam Mills, at the foot of Brown street Philadelphia. It produces work equal if not superior to any machine now in use, both as to quality and quantity. The lumber planed by this machine is as well adapted for being painted as that planed by hand, the fibre of the wood not being compressed after being planed. Also the elliptical stone cutter for facing marble, granite, and other substances as well as for chipping dye stuffs, can be had by applying by letter or otherwise to James M. PATTON, Phildelphia, 1*

1852 TO 1856.----WOODWORTH'S PAtent Planing, Tongueing, Grooving, Rabeting, and Moulding Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price from $150 to $760. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 26tf

STEAM ENGINES AND BOILERS—The patentee is now ready to supply orders for steam engines with Ayer's Patent Improved Boiler of any size required. These boilers occupy but little space, can be set up without brick work, and will make more steam with the same fuel than any other boilers. A self-acting feeder furnishes a constant supply of water, preventing thereby, in a great degree, the danger of explosion. Where doubts are entertained as to the superiority of these boilers, I will be content to receive for the right one-fourth of the value of the fuel saved by their use. Portable engines furnished to order. E. AYER, Patentee, Norwich, Conn. 26 7*

TRACY & FALES, RAILROAD CAR MANUFACTORY—Grove Works, Hartford, Conn. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 26tf

A PARTNER WANTED—Who will defray the expenses of obtaining a patent for a new invention of general utility in foreign countries, and share the profits. The invention is equally useful to all civilized nations, and any one may designate what countries they wish to be interested in and obtain more information by addressing, post-paid, Box 68, Bellows Falls, Vt. 1*

MECHANICAL DRAWINGS—J. H. BAILEY, draughtsman, agent for the sale of patent rights, Inventions, machinery, &c., office, Tryon Row Harlem Railroad Buildings, opposite City Hall, 26 2*

MALLEABLE IRON FOUNDRY, EASTON, Mass—The subscriber continues to manufacture castings of every variety, for machinery and other purposes, of the best quality, at the above establishment. We have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Eastern Express, Boston, Mass. All letters will be promptly attended to.
21 10* DANIEL BELCHER.

NEW HAVEN MANUFACTURING COMpany, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILL, Agent N. H. Man'g Co. 25tf

WHITE'S TUBULAR SUSPENSION Bridge. The subscribers would respectfully announce that they have recently obtained Letters Patent for the above invention, and are now prepared to contract for, and build at their own risk, bridges extending any required length short of two thousand feet at one span, and sustaining any specified weight. The principles involved in the construction of this bridge, combining as it does the practicability of spanning long reaches, together with strength, economy and durability, have secured it the favorable notice and admiration of many of our most skillful and scientific men. Those interested in Bridge building, may address either of the proprietors. AMMI WHITE, 17 Prospect street, Boston. JOSHUA P. THAYER, Cambridgeport, Mass. 25 3*

DRAUGHTING BOARDS.—CHAMBERLIN'S PATENT, 23x29 inches, 28 feet of various scales, arranged for draughting of all kinds with dispatch, and mechanical device for ready adjustments of draught sheets, of thorough made and elegant appearance, approved by the American Institute, N. Y., and various other authority. Price with T rule $10, can be sent by express. Address, post paid, H. W. CHAMBERLIN, Pittsfield, Berksire Co., Mass. 24 4*

THE SUBSCRIBER is now finishing four 14 horse engines, with boiler and apparatus all complete—price $1200 each. Several 6 horse engines extremely low: also, several of smaller capacity, completely; also, several power plainers, now finishing. Galvanized chain for water elevators, and all fixtures—price low—wholesale and retail. Orders, post paid, will receive prompt attention. AARON KILBORN.
No. 4 Howard st., New Haven, Ct. 23 10*

TO ARCHITECTS, SCULPTORS, &c.—The Commissioners of the Greene and Pulaski Monument Lottery Fund, offer Three Hundred Dollars for an approved design for a Monument, to be erected to the memory of Count Pulaski, in Chippewa Square, Savannah. Architects, Sculptors, Designers, &c., are invited to offer plans and specifications for selectmen, and to evince their own taste and judgment as to design, with no other limit than the cost, which must not exceed $17,000. Designs will be received until the 1st day of April, 1852, by the subscriber, from whom any further information may be had.
WM. P. BOWEN, Secretary.
Savannah, Geo., Jan. 13, 1852. 21 6*

TO FELLOE AND SNATH MAKERS—The undersigned having purchased the entire right of A. W. Johnson, for his machine for bending carriage felloes, &c., are now prepared to sell State or county rights for said machine; having used said machine for several years, we know it to be a saving in timber of 30 per cent, and more expeditious. Persons can see one of the machines at work at the manufactory of W S. Johnson & Co., St. George's, Del.; also felloes of all kinds. Shafts and carriage stuff always on hand, and at prices to suit dealers in the above. WM. G. JOHNSTON & Co.,
22 10* St. George's, Del.

MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago; I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.
Nashville, Tenn., 1851.
This machine is simple, durable, and effective, and is boxed and shipped for the low sum of $20.
MUNN & CO.

A CARD—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubbs) and Swiss Files and Tools; also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English styles—which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools and manufacturer of Mathematical Instruments, 154 Fulton st. 23 13*

IRON FOUNDERS MATERIALS—viz.: fine pulverized Sea Coal, Anthracite and Charcoal, Black Lead and Soapstone Facings. Iron and brass moulding sand; Core sand and flour; English Fire Bricks for cupolas, &c. Fire Sand and Clay—for sale by G. O. ROBERTSON Liberty place, (near the Post Office) N. Y. 23 10*

$150 REWARD—One hundred dollars for complete working drawings, with elevation of the same, of the most elaborate and best-proportioned Stationary Horizontal High Pressure Engine; bore 12 inches, stroke 30 inches. The design must combine with ornament, simplicity and cheapness of construction, and yet be susceptible of extreme finish, with as little hand labor as practicable. Fifty dollars reward, also, for the best Upright Engine, with same combinations, bore 10 in. stroke 20. The above are wanted for a special object, and the different designs will be submitted to a competent committee, who will make the awards. Heater, pump, and connections, and fly-wheel must be included.—Refer to W. B. Leonard, 60 Beaver st., N. Y. Open till March. Mail to A. Z. & Co., New York. 24 3

VENTILATION—In reference to the advertisement which I have had in this paper for some time, and also in reference to the reward offered by F. M. Ray "for the best method of excluding dust from cars when in motion," I beg to inform car building companies, railroad companies, and steamboat companies, that my patent includes the Ventilation of all these vehicles, and covers the whole ground of "excluding dust," &c. I expect to be in New York and Boston some time next month, of which notice will be given in some of the daily papers, as also of the place where I may be found. H. RUTTAN.
Coburg, Canada, Feb., 1852. 24 5*

TO COTTON MANUFACTURERS AND MACHINISTS—The undersigned having had thirty-five years' experience in the manufacturing and machine business, is desirous of obtaining a situation as foreman or agent in the above branches; would have no objects to go South or West; the best of reference can be given. Letters addressed to CHARLES E. MOORE, Groveville, Mercer Co., N. J., will be attended to promptly. 24 4*

J. ADAMS & SONS, AMHERST, MASS.—Patent Felly Machine. Belden & Colton, 98 Chamber st, New York; John B. Wynn, Anderson C. House, S. C.; Agents for sale of rights of machines and territory. W. Fishman & Co, Baltimore, Md.; P. A. Leonard, New York City; Agents for sale of Machines. 25 4*

POST'S PATENT SLIDING DOOR FRONTS—for stores and Public Buildings; a new, cheap, and simple fixture for securing store fronts, which renders them fire and burglar proof, has been invented and patented by the subscriber, who is now prepared to sell rights. Messrs. Quarterman and Son, 114 John st, N. Y., are general agents. Address, (post-paid) Wm. POST, Architect, Flushing, L. I. 25tf

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J. 7 20*

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
23tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

WOODWORTH'S PLANING MACHINE—For sale, the right to use this justly celebrated labor-saving machine in the following States, viz., Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama, and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 208 Broadway. 17 12*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, New Haven, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

THE EXCELSIOR Sand and Emery Papers. are offered as new and superior articles, being manufactured by an improved process; the paper is made from the best Manilla hemp, and consequently is very strong and lasting; the grit is of the sharpest and most enduring kind, and is firmly attached to the paper with a remarkable evenness of surface; their freeness from ridges, stripes, and other imperfections, recommend them to the notice of consumers. These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped WM. B. PARSONS, and warranted. Samples furnished at the office, No. 187 Water street, New York. WM. B. PARSONS,
14 6m* Sole Proprietor.

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

MACHINIST'S TOOLS.—Marshall, Bement & Colby, (successors to E. D. Marshall & Co) Callowhill street, west of Schuylkill Third, Philadelphia, Pa., are prepared to make to order, and keep on hand Machinist's Tools, such as Planing and Compound Planing Machines, on a new and improved plan, Slide and Hand Lathes, Upright and Horizontal Drills, Upright Boring Machines, Improved Screw and Bolt Cutting Machines, with P. W. Gates' Patent Dies and Taps, or with the common Dies, Gear Cutting Engines, Slotting and Paring Machines. Also keep on hand Washburn & Whiton's Patent Scroll Chucks, of all sizes. All orders by letter or otherwise will receive their prompt attention. E. D. MARSHALL, WM. B. BEMENT, G. A. COLBY. 21 10 *

CHAS. W. COPELAND, Consulting and Mechanical Engineer, Surveyor of Steam Machinery, &c., No. 68 Broadway, N. Y., superintends the construction of steam vessels and steam engines, and machinery of every description; specifications and contracts prepared; also general plans and drawings in detail furnished. Steam engines surveyed and valued, and condition reported. Mr. C. also acts as agent for the purchase and sale of steam vessels, steam engines, boilers, &c. 21 10*

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

HAWKIN'S Stave Dressing Machine—Is now in operation in the city of Milwaukie, Wis., and will dress from 6 to 8000 staves per day, ready for the truss hoops, and at one operation. Rights for States and Counties, and also machines, for sale, apply to WM. HAWKINS, Patentee, Milwaukie, Wis.
15 20*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

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SCIENTIFIC MUSEUM.

Scientific Memoranda.

SNOW-BALLS MADE BY WIND.—Nature sometimes amuses herself by rolling up the snow, as it descends, into balls, like those formed by children in their play. An extract of a letter from West Rutland, Vermont, dated January 29th, and published in the Hartford Courant, gives an account of one instance of this kind:

"The weather of last week was most severely cold, the thermometer varying from ten to thirty-five degrees below zero; but on the 25th it came up to ten degrees above zero; and on the morning of the 26th ult., at dawn, there was a brisk snow storm from W. S. W., the snow falling to the depth of two inches on a hard but not very smooth crust. About sunrise the snow-squall ceased, and a violent wind arose from the southwest, and commenced forming the new snow (which was very light) into balls; and in half an hour I could see, as far around me as the fields extended, balls in any quantity, varying from three inches in diameter to some as large as a common pail, or twelve to fifteen inches in diameter; and at this moment they can be traced several rods by their track. Although much fallen to pieces, they are now to be seen by thousands. I saw them forming, and should judge by appearances that they were all made within the space of half an hour."

THE PLAGUE.—It is very certain, from accounts received both here and in England, that the true plague has been introduced into Madeira, and the work of death has been appalling. The question has been agitated, will that dreadful disease ever reach this continent? There is reason to believe it will; the wonder is, why it has not been here already. Our commercial intercourse is extensive with various parts of Africa and the Asiatic shore of the Mediterranean, where this great scourge is never dead or dying, but simply reposing from one period to another, like a fatigued giant, to gather strength for a renewal of slaughter. Should it come, it may be hoped that there will be found more science and a stronger barrier of medical skill to meet and disarm it of its terrors, than has been exhibited in tropical climates, or in the filthy scourge-inviting regions of Moslem Turkey.—[Boston Medical Journal.

DEPOSITIONS OF RIVERS.—An interesting paper from Baron Humboldt, upon the Mississippi river, has been recently read at the Academy of Sciences at Paris. The paper states that at Memphis, the river rolls away at the rate of 13,709,006,232,791 cubic feet a year. The 2,950th part, or 4,600,000,000 cubic feet of this volume is mud. In this mud are found 82 different kinds of microscopic creatures. The volume of the Mississippi is nearly as large as that of the Ganges at high water, and two and a half times as large as that of the Nile. Organic life enters in the turbid portions of these rivers in the following proportions:—In the Ganges, animal microscopic life forms from one-third to one-fourth of the mud—giving from 139 to to 186 cubic feet of animalculæ in a second. In the Nile it forms from one-twentieth to one-tenth, giving from six to thirteen cubic feet of worms in a second. In the Mississippi, it forms from one-fiftieth to a thirty-third, giving the Father of Waters from two to four cubic feet of animated mud, which it rolls by Memphis, every second of its life.

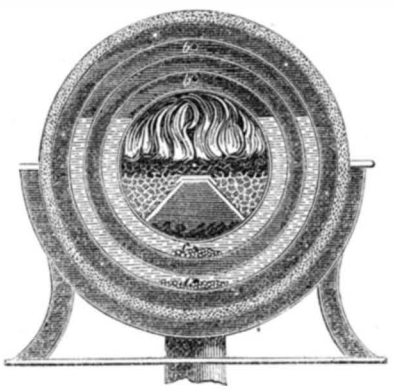
HOW TO BURN COAL.—The art of burning coal is not yet properly understood as it ought to be. Too much coal is usually placed in the stove, by which the draught is destroyed and the gases are imperfectly consumed. The Miners' Journal, of Pottsville, says there are two other errors in the way we burn coal, by which more than one half is wasted,—1st. We have to shut the door of our stove or furnace, to make a temporary over-combustion at one time, and at another time we have to leave to open the door and let in the cold air to cool off. 2d. The gas that ascends our chimneys carries with it a deal of coal that is unburned, merely coal in vapor, which gives out little heat for want of air to consume it.

We lose the most of this unconsumed vapor of coal when the door is shut. When it is open, the vapor is consumed, but the heat is reduced by a flood of cold air and carried up the chimney. What is required then is an air-tight door over the ash-pit, through which you can let in just what air is necessary for quick or slow combustion, as desired. The door that admits the coal should be tight, and should never be opened except to put coal in. A small flue should admit a stream of air heated by contact with the stove. If you find that the stove or furnace door must be left open when you want to moderate your fire, reject it; for it is essentially wrong in its construction and will consume three tons of coal where one would answer if the draught door was air-tight.

[In speaking thus, it must not be forgotten that the above applies more to bituminous than anthracite coal, and it only applies to anthracite when there is a strong draught, and when the fire is newly supplied with fresh coal. There are some stoves with holes in the front above the fuel, which, by a slide, can be opened or closed to accomplish the objects referred to above.

On Boilers.---No. 16.

FIG. 29.



ANNULAR BOILER.—Fig. 29 is a transverse vertical section of a boiler invented by a Wm. James, of Holborn, Eng., and patented in 1826. A series of annular tubes of equal capacity and diameter are placed side by side and bolted together, so as to form, by their union, a long cylindrical boiler, in the centre of which the fire place is situated. The flat sides of the chambers are connected by means of long bolts passing through the end plates of the cylinder, where they are screwed up firmly by nuts on the outside. A cylinder of distinct annular tubes being thus formed, a communication from one to the other is opened by making two perforations in them lengthways of the cylinder, on the upper side, for the free passage of the steam, and one on the lower for the free passage of the water. The entire circles of only two of the tubes (one of each series) are brought into view.

The upper perforations, or steam passages, are shown at *b b*, and the lower perforations, or water passages, at *c c*. The water is maintained at a certain level by the action of a float in a regulator, which is of a peculiar construction.

The situation of the furnace is obvious in the figure, the bars or grating of which form two inclined planes. The flames and heated air take the direction through the centre, as shown, previously to their being diffused in every part, and the vapor finally escapes downwards, by the chimney or flue, *e*. This flue is made to slide in and out of its place; the whole furnace is likewise constructed so that it may be easily drawn out of the cylinder. The entire boiler turns upon an axis, and rests upon rollers fixed in a circular frame or stand. Every tube is furnished with a few shot, mixed with angular pieces of metal, so that when it is desired to cleanse the boiler from any deposition, it is only necessary to draw out the furnace, the chimney tube, and to unscrew the several pipes, when a few turns with a winch causes the shot to roll, and the angular pieces to scour the angular chambers clean; the operation being similar to that of the scouring barrel employed at Birmingham for brightening iron work.

To prevent the loss of caloric by any considerable radiation through the sides of the boiler, the cylindrical casing to it is made double, of sheet-iron, with the space between the internal and external coats closely filled up with a mixture of charcoal and clay, or other materials that are slow conductors of heat.

In 1824, Mr. Jacob Perkins, the well-known American inventor, residing in London, took out a patent for a steam generator, which had thick cast-iron bars five inches square, with circular holes perforated longitudinally through them of 1½ inches diameter. These were arranged in three tiers, and their extremities connected together to make them one continuous vessel. By a force-pump the water was injected into the upper tiers to keep them always full, under a heavy valve. The lowest tier of generators contained no water, and were kept red-hot; a certain quantity of water, at 700°, was injected into the red-hot generators at every stroke of the engine, which was to flash at once into steam. It was a complete failure, and a dangerous invention. In 1826, Mr. Goldsworthy Gurney, an inventor of steam carriages for common roads, and a very ingenious man, took out a patent for an improved boiler for his steam carriage; it had both vertical and horizontal tubes, the water passing through the tubes, like that of Dimpfel's Boiler—which will be described in a future paper. Mr. Gurney proposed, in his patent, to remove incrustations, by employing 1 part of muriatic acid to 100 of water, which solution was to be left a sufficient time in the boiler to remove the incrustations. Many have supposed that, by forcing jets of water on a block of red-hot iron, in a strong vessel, a small boiler would answer as well as a large one, and steam would be generated faster. This is not correct, for red-hot surfaces reduce water to a spheroidal state, and prevent the generation of it into steam but at a slow rate, in point of time.

Insect Builders.

M. Reaumer states that for a period of twenty years, he endeavored, without success, to discover the materials employed by wasps in forming the blue, gray, papery substance, so much used in the structure of their nests. One day, however, he saw a female wasp alight on the sash of a window, and it struck him, while watching her gnawing away the wood with her mandibles, that it was from such materials as these she formed the substance which so long puzzled him. He saw her detach from the wood a bundle of fibres, about one tenth of an inch in length, and finer than a hair; and as she did not swallow them, but gathered them into a mass with her feet, he had no doubt but that his opinion was correct. In a shoat time he saw her shift to another part of the window, and carry with her the fibres which she had collected, and to which she continued to add. He then caught her and began to examine her bundle, and found that it was neither yet moistened nor rolled into a ball, as it is always done before used by the wasp in her building. He also noticed that before detaching the fibres, she bruised them into a kind of lint with her mandibles. All this he imitated with his penknife, bruising and paring the same wood till it resembled the fibres collected by the wasp; and so he discovered how wasps manufactured their paper; for these fibres are kneaded together into a kind of paste, and when she formed a round ball of them, she spreads it into a leaf, nearly as thin as tissue-paper; and this she accomplishes by moving backwards, and levelling it with her mandibles, her tongue, and her teeth. And so the wasp forms paper, placing layer upon layer, fifteen or sixteen sheets deep, and thus preventing the earth from falling down into her nest.

Sunk Rock, in the Java Sea.

Lieut. Maury gives an account of a dangerous reef, hitherto unknown, in the Java Sea, lat. 6° 44′ S., long. 121° 30′ E. The rocks lie S. E. from Tiger Island. The ship George Brown, from San Francisco, for Calcutta, struck and become a perfect wreck on the 15th April last. Mariners are warned to beware of this reef.

Great Speed.

Two new locomotives, lately put on the Hudson River Railroad, made two very extraordinary trips two weeks ago, viz., one to Albany (144 miles) in three hours twelve minutes, and the other the same distance in four minutes less, viz., one hour eight minutes. The latter trip was an average of 46 miles per hour within a fraction.

Earthquake in France.

A French paper of the 26th January, states that a shock of an earthquake was felt at Bordeaux, at a quarter past two, on the morning of that day. It lasted from seven to eight seconds. Persons who were in bed fancied that some heavily-laden wagons were going along the streets, or that a heavy piece of furniture was being pulled about above their heads. The shock was preceded by a kind of detonation; two distinct oscillations were felt at about three seconds' interval; the direction appeared to be from the south to the north. The degree of violence of the shock varied in the different quarters of the city; it was more felt in the high houses. On the side of the Quinconces it was felt very severely; the pictures hanging on the walls were agitated; light articles of furniture were thrown down, and windows were broken. In some of the churches the painted glass windows flew into pieces, the church of St. Pierre and the cathedral suffered most severely in this way. Persons who happened to be in the streets at the time were seized with the greatest alarm; they suddenly felt the ground tremble under their feet. The sky at the time was of a dark reddish color, as if from the effect of a tremendous fire at a distance. In the country the cattle in the fields partook of the general alarm, and uttered moans and cries. From accounts received at Bordeaux, from other parts of the Gironde, it appears that the shock was general throughout the whole department. At Libourne the people were awakened by a violent shock; at La Suave the shock was very severe, and several houses were damaged; at Gradignan the same phenomenon was felt; everything appeared to be dancing about in the houses.

LITERARY NOTICES.

SARTAIN'S MAGAZINE, for March.—The embellishments in this number are chaste, and worthy of the art. It contains, among the number, a portrait of Berzelius, one of the most eminent chemists the world has ever produced. The number is one of much elegance and excellence, and deserves a liberal patronage. Dewitt & Davenport, New York; Sloanaker & Sartain, publishers, Philadelphia.

NYSTROM'S CALCULATOR—We have received a copy of Nystrom's Calculator, which accompanies his machines, and without which it is of no practical utility, but with one it would be of great value.

THE INTERNATIONAL MAGAZINE, for March, contains several spirited illustrations, and an able contents of orginal and selected miscellany. It is intrinsically one of the brightest and most interesting American periodicals, and covers a wide range. We believe it is well supported and highly appreciated.

We have received from Messrs. Stringer & Townsend part third of "Self-Deception, or, the History of a Human Heart." If the publishers will send us parts one and two we shall be able to speak of its merits much better. The head is generally examined to ascertain impressions of character.

INVENTORS

Mechanics and Manufacturers

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Postmasters, being authorized agents for the Scientific American, will very generally attend to forwarding letters covering remittances.

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N. B.—The public are particularly warned against paying money to Travelling Agents, as none are accredited from this office. The only safe way to obtain a paper is to remit to the publishers.

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